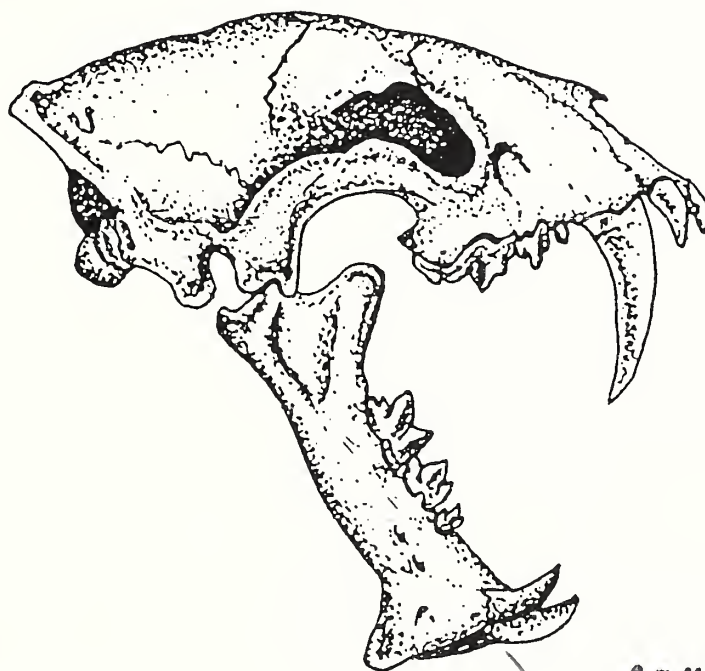


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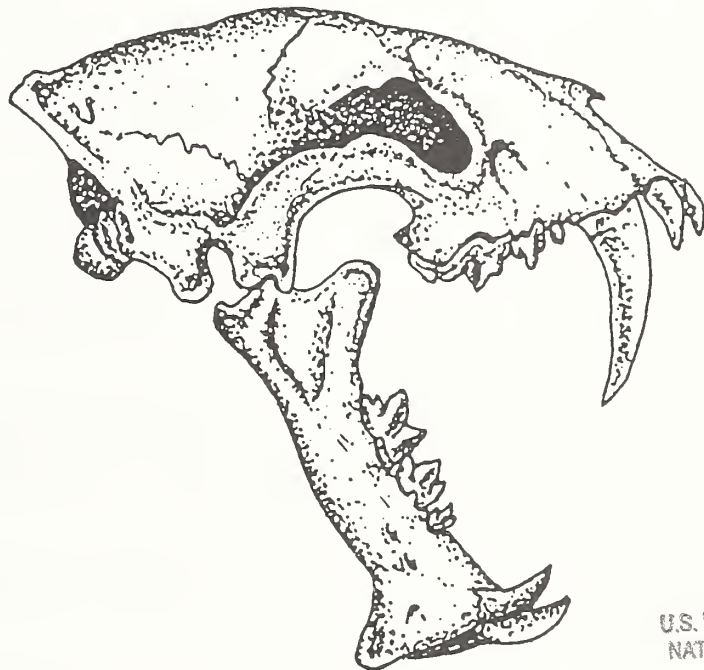
**NORTHERN PLAINS
GOVERNORS' CONFERENCE
AUGUST 24-26, 1992**

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FOSSILS FOR THE FUTURE



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**NORTHERN PLAINS
GOVERNORS' CONFERENCE
AUGUST 24-26, 1992**

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Introduction

The goal of the Northern Plains Governors' Conference was to establish a groundwork for a coordinated regional approach to integrate education, economic development, and protection of the vertebrate fossil resource by considering both public and private interests at the national, state and local levels. The Conference was to be a public forum where land managers, professionals, amateurs, hobbyists, and other interested parties could convene for the purpose of exchanging information and identifying issues concerning management, protection, and rural economic development issues related to finite, irreplaceable, vertebrate fossils. Planning for the Conference began in 1991, when the USDA Forest Service, Nebraska National Forest contacted South Dakota Governor George Mickelson and offered to organize the event.

The National Park Service, South Dakota School of Mines and Technology, South Dakota State Historical Society, and University of Nebraska-Lincoln accepted the Forest Service offer to assist in planning efforts. Representatives from these organizations came together to organize and plan the Conference, which took place August 24-26, 1992 in Rapid City, South Dakota.

Unforeseen events caused the early cancellation of the Conference before attendees could address the issues in discussion groups. These proceedings have attempted to capture the ideas, comments and concerns that would have been raised during the issue discussion which was to be held on August 26, 1992.

NORTHERN PLAINS GOVERNORS' CONFERENCE

Rapid City, South Dakota

August 24-26, 1992

Welcome to "Fossils for the Future." I have always thought of fossils as those magnificent skeletons of animals that roamed the earth millions and millions of years ago that you find in museums throughout the world. For a long time, I thought the principal question concerning the collecting of fossils like dinosaurs related to how dinosaurs became extinct.

I don't believe this is right. My thoughts were on the importance of the scientific interests in these vertebrate fossils when I agreed to the request of Bob Storch, who was then superintendent of the Nebraska National Forest, to host a governors' conference on Fossils for the Future. Recent events in our state concerning the collecting of fossils have helped me better appreciate the issues relating to the formation of public policy governing the collecting of fossils.

There is a need to examine the current policies regulating the collecting of fossils. My office has received more correspondence on this conference topic than any other conference that I've sponsored in my six years as Governor. We have heard from the amateur collectors, the commercial collectors, the federal and state land managers, museum directors, and several others. These letters have ranged from admonitions to cancel the conference, to statements of position about opening or closing the collecting of fossils, to appeals to include numerous topics and speakers on the conference agenda.

It is perhaps an understatement to conclude that the feelings about fossils for the future are intense, strong and divergent. But, most of all, the effect of these inputs is to reinforce the need to re-examine public policy concerning the collecting of fossils. This conference is but one step in the vital process of examining public policy issues in a balanced manner. This conference must provide opportunity for the open discussion of those issues that impact the availability of fossils for the future. In short, we are certainly experiencing the heat, now let's

see some light.

You must help address issues that range from the abundance of microscopic creatures that swam in ancient seas to the need to safeguard the scientific information associated with the collecting of the rare, nearly complete specimens of animals. Yet, like coal and oil, these fossils of animals are a precious nonrenewable resource.

The increasing interest in fossils help us to recognize the need to achieve balance in the way we approach public policy about collecting and protecting these precious fossil resources. We must seek balance in the consideration of the interests of the many amateur collectors who enjoy the thrill of roaming open lands in the hopes they may discover such a special find. We must balance the interests of the commercial collectors who also seek to discover and market that special find.

There is a need to develop public policy that will balance the over abundance of some fossils with the apparent need to protect the availability of the scientific information to be gained from

the discovery of a new fossil type. I hope all of you participating in this conference will seek ways to balance the legitimate expectations of the general public that fossils will continue to be available to provide information about the past.

Today, perhaps more than ever before, we must recognize that the resources available to government are limited. In south Dakota, we are learning that much can be achieved by tapping the resources of government to assist in economic development in the private sector. Thus, there is a need to seek a balance between commercial collecting and the responsibilities of federal and state governments to protect fossils on behalf of the public. While you may find that the interests of the commercial collector and the interests of the government are simply too far apart on the collecting of fossils to achieve balance, the potential for leveraging the resources for scientific study that could be made available through cooperation between commercial and government collectors certainly should encourage the participants of this conference to carefully consider such an option. The options available

might include the use of high resolution modeling of the fossils to provide a mechanism for the marketing of copies of the specimen while also retaining the specimen for continued scientific study.

In 1987, the National Academy of Sciences issued a report with recommendations that address some of the issues related to collecting fossils. The report notes that the "committee's specific recommendations are designed to reduce rather than promote regulation." This conference provides an excellent opportunity to further address the issues raised in the report and to consider more recent perspectives not included in this report.

The recommendations of the National Academy of Sciences report include a call for the development of a uniform national policy of paleontological collection for all federal agencies. The report recommends that each state adopt a uniform paleontological policy for state-owned lands. The recommendations also call for possible changes in the regulations governing collecting permits. These recommendations appear to represent the views of some in the scientific

community concerned with fossils and have the support of the association of commercial collectors. I am also aware these recommendations do not have the support of other members of the scientific community.

I believe the formation of public policy is best accomplished through complete discussion of all the pertinent issues. I urge your attendance today to seek to rise above the emotions of recent events and search to find those areas of consensus that can be forged into good public policy. I have come to appreciate the great importance of developing balance in all aspects of our public policy for the collecting of fossils. The potential value of the scientific information contained in some fossils is simply too great for us not to at least attempt to find workable solutions. I encourage all of you to join in the dialogue that must occur if we are truly to develop processes that balance the many legitimate interests concerning our fossils for the future.

I thank Mary Peterson, who has followed Mr. Storch as superintendent of the Nebraska National Forest, and the many other persons representing

public, private, commercial and amateur collectors. I thank Dr. Gowen and the staff of the South Dakota School of Mines and Technology and the many others who have worked together to bring this conference into reality.

I look forward to gaining insight from the discussions of the next two days as we seek to ensure the availability of fossils for the future.

Honorable George S. Mickelson
Governor, South Dakota

FOSSILS FOR THE FUTURE

Keith Ferrell, EDITOR, OMNI MAGAZINE

Thank you. We are here to talk of fossils, and of the future. Of ancient creatures, and of the day after tomorrow. Interesting topics, fraught with contention.

The contenders will weigh in later, today and tomorrow, and doubtless in the weeks and months ahead. I, as you, look forward to hearing the debate, to learning more of the various points of view, the often passionate beliefs, the arguments well-reasoned and otherwise, the strong opinions.

For we do hold strong opinions on these topics. We are drawn to fossils, we humans, as we are drawn to few other things. Perhaps the sea calls to us as strongly, perhaps the stars. But we hear the fossils' call too and for most of us their attraction begins in early youth, a captivation, for some a compulsion, a resonance. *Dinosaurs*.

Why do we hear this call so clearly? Why do dinosaurs speak so strongly to us? I don't know for sure. I've heard it said that it's because dinosaurs are bigger than our parents. Could be -- certainly a child displeased with Mom and Dad could use a fearsome, toothy, tall pal, however reptilian.

But the romantic in me thinks there's something more than child psychology at work here. There is the past, the geologically distant past, another world from our own. A lush and dangerous world, *primal*, not without its appeals to we creatures of cities and sidewalks and...conferences.

At OMNI, we deal in science fiction as well as science fact, using fiction as a filter, an artistic lens through which we examine matters scientific, a place where two cultures can come together. Few themes

strike a more responsive chord with our readers than the theme of time travel, particularly travel to prehistoric times. Our readers would rather travel back to see a dinosaur than to see the crucifixion, or even Elvis.

To go back, to walk through that vastly distant, vastly different world of dinosaurs. In the hands of skilled science fiction writers, which is to say in artistic hands, this theme comes alive, placing humans in a saurian context, in prehistory, showing us clearly another reason why we are so drawn by the dinosaurs.

It is because of their power and because of their demise. What a successful form of life they were! How long they lasted! And yet they did not last forever, did they? For all of their size and power, they did not last forever. Any more, on an individual level at least, than we will. The bones of the dinosaurs speak to us of mortality, of the fragility of life even at its most potent and powerful. The bones sing an elegiac song, and most of us hear it at one time or another.

They sing, perhaps even more, a song of mystery as well, of mysteries beyond age, mysteries that ache to be solved. We ache to solve them.

Is there a more romantic calling than that of the paleontologist? The field sleuth -- academic, amateur, institutional, professional, commercial -- coaxing the earth to yield the secrets of its earlier inhabitants. Indiana Jones could not come close to being so cool, so dashing, so bold in engagement with the stuff of prehistory. The paleontologist -- professional or amateur -- is herself or himself in popular culture a creature of near-myth.

We in this room know the truth, don't we? It is cool, way cool as my 14 year old son might say. Paleontology appeals to us because it is tactile, it smells of the earth, of nature and the natural world, of our world's past. We cannot be astronauts. We can't work, most of us, with recombinant DNA. Particle physics eludes the majority. We can read of

these things -- and fortunately for OMNI several millions do each month -- but we can't practice them.

But paleontology, ah! Vertebrate, invertebrate, botanical, all of it. Here is a science, so it seems, where we might all join in. Here is a scientific song the layman might sing.

And this has been true for well over a century, and, humans being humans, the desire to see fossils, to touch them, and, perhaps problematically, to collect them and own them, seems likely to last into the future.

Which is why we are here, finally, to open a dialog, and I hope it will be a reasonable dialog from all sides, about fossils, the future, and the future of fossils.

OMNI is a magazine of the future. We speculate, we extrapolate, we project, and occasionally we predict, but always cautiously. I'll make a prediction now: the issues in play at this conference will not be fully resolved today, and maybe not even tomorrow.

But here's another prediction, a more hopeful one: we are in the opening stages of a dialog that can, and maybe will, lay a foundation and a groundwork for protecting not only a precious and finite resource, but also for protecting public participation in the case of our fossil resources.

This will not be accomplished without hard work and even pain. Voices may be raised. Ways of life that have preceded unimpeded for generations may be called into question. Passions, habits, incomes, and traditions are on the table, and that ensures strong feelings.

Again at OMNI, one tool we use for looking at the future is our awareness of the past. Be aware of the past -- not just the geologically distant past -- as you work through these issues. Be aware of what is at stake for the people involved.

Above all, thinking about fossils for the future, focus on the fossils themselves, not simply on labeling the various parties involved. Be wary of fiat by academic credential. There are skilled amateurs and sloppy academics, honorable commercial collectors and less than competent institutional ones. These resources are so precious that their future must belong, must be entrusted to, a partnership committed to the preservation of information, of the information held by the fossils. All of the voices must be heard. What matters are the skills brought to the field, and the goals and purposes to which those skills will be put.

Most of all, I would suggest, I would urge you to seek a consensus that preserves for the future as much as is possible of the public passion for fossils.

That passion for paleontology, for participation in the science is itself a precious resource. We hear constantly of the crisis in science education in this country. Well, here is a chance to do something about it. We have called at OMNI for the creation of a sort of science corps, a means of informing and exciting people about the glory of the scientific method, its precision and its rules.

I urge that you incorporate an approach to public education in your plans. The first step along such an approach is to make certain the public knows that fossils are not inexhaustible resources, that, as a finite resource, their future is by its very nature *endangered*, that as relics of living things, each fossil is unique, that damage can be done by the unprepared or untrained, however genuine their enthusiasm.

But that is not enough. We must take steps to ensure that the serious amateur, the ones willing to make a commitment to their passion, are not denied the opportunity to practice it. Help the public learn the skills. Encourage the creation of classes, the development of materials, the support of special interest groups, of clearinghouses for the sharing of knowledge and expertise. So that more of those who go out in search of fossils understand just how precious an item it is that they seek, and

can bring to their search the requisite abilities needed to avoid damage to the sites they find. And they will find sites -- science has always benefited from the participation of the skilled amateur. To deny science the insights and enthusiasms of lay participants is to weaken ever further our culture. We already suffer from too many people thinking of science as a priesthood, or worse a cabal, remote and unattainable, manipulative. Embrace, educate, and encourage the public, and your job will be made easier.

Many jobs will be made easier. An educated public will serve as a defacto protective force on public lands. They will help guard its trust, if they know what they are protecting.

And as for the commercial collectors? Again, I urge reason. Look at the fossils, how they are treated, where they are bound. Perhaps we finally cannot afford for higher vertebrate fossils to bear price tags, to become commodities, objects d'art for privileged households. But think of fossils as bits of information, irreplaceable, and ask if their information will become a part of our species' global storehouse of knowledge, accessible to scholarship, available to public view. If so, it may not ultimately matter so much whether the collector is academic, commercial, or amateur. What matters is that the resource will be shared, available, accessible. Part of our intellectual heritage, not lost to it.

Above all, by way of creating an environment that drives collection underground, into haste and stealth and darkness -- that way lies true vandalism.

What is the purpose to which the fossils will be put? That is the question that must be foremost in our minds.

And just as typecasting can get in our way when classifying collectors --these are good, these are bad -- so can taxonomy, the naming of names, get in our way when thinking about the purpose to which you are gathered.

In my mail, in conversation, in comment I have heard these words from several sides -- management, regulation, restriction, rules. *Throw these words out.* They muddy the waters. What is involved here is too precious for the older tools of bureaucracy -- we are in need here, as in so many parts of our world, we are in desperate need of new paradigms. Tools for the 21st Century, we call them at OMNI.

What sort of tools? Well, words are just words, and I have said a lot of them here. You just heard a few, the restrictive ones, the exclusionary ones. Let me leave you with some substitutes. Stewardship. Caretaking. Nurturing.

Of the land, yes. Of the fossils, of course. But also of the public imagination, that so very human curiosity, the urge to see and touch the past, to know what that past was like, what great creatures strode through it. To travel through time, to hear the songs the fossils sing.

That's precious, too, and I wish you luck and, indeed, wisdom, as you approach these large issues.

The future of the fossils and our relation to them, deserves, demands no less..

FOSSILS FOR THE FUTURE
NORTHERN PLAINS GOVERNORS' CONFERENCE
AUGUST 24-26, 1992

BRINGING FOSSILS TO LIFE

Hugh H. Genoways

I am not an academic paleontologist. In fact, I am not trained to be either a professional or amateur paleontologist. However, as Director of the University of Nebraska State Museum, I have administrative responsibility for one of the truly great Cenozoic mammal collections in the world. Emanating from this world-class collection are research programs in vertebrate paleontology, formal science education programs, and informal science education programs.

The goal of our research programs in vertebrate paleontology is to generate new knowledge about the history of life on earth. This is certainly not a complete picture, but much more like a jigsaw puzzle with most of the pieces missing. Each new discovery, each new fossil then becomes vitally important. It adds to completing the picture no matter how small a piece it may add.

Research also feeds directly into support of the formal science education programs which are primarily conducted at the undergraduate and graduate levels. This teaching is done for general students as part of a liberal education because we believe that it is important for everyone to have some understanding of the history of life on earth. Formal science education is also obviously done for education of future professionals in paleontology, geology, biology, etc.

Our informal science education programs take the form of public education programs, programs for K-12 children, and public exhibits. The goal of our informal science education program, as for other natural science museums, is improving our nation's appallingly low level of "science literacy". One of the keys to natural history museums promoting popular interest in science has been fossils. Dinosaurs and other fossil animals probably have never been more popular. They are the subject of many programs in the public media, particularly television. Popular books for both children and adults feature all types of fossil animals.

This obvious interest in fossils and the need to improve science literacy has lead several agencies to provide new funding for informal science education. The University of Nebraska State Museum has successfully competed for these funds for programs that focus on fossils. A major grant was received from the National Science Foundation to construct a gallery dealing with life in the Mesozoic Era in Nebraska. Besides constructing this public exhibit, we will be dealing with K-12 schools to develop educational programs about this Era that can be incorporated into their curricula. The Howard Hughes Medical Institute has given us funding to increase our outreach programs to all schools in Nebraska. Some of these outreach programs which will feature minority researchers will focus on fossils. The first will deal with the research of Dr. Michael Voorhies at Ashfall Fossil Beds State Historical Park.

To illustrate how fossils can and are used to increase public education and awareness, we can look at the programs of the University of Nebraska State Museum. I offer these as examples not because they are unique, but rather because they are rather typical of the public programs of other natural history museums. The traditional method for presentation of fossils to the public has been through exhibits. In many cases, the presentation will be as mounted skeletons. An extension of these mounts is to do life reconstruction based upon these skeletons such as our *Allosaurus*. The ultimate "evolution" of this form of presentation is the automated dinosaurs presented by Dinamation International and the Kokoro Corporation.

Many of our public programs are based upon facilities in our primary public building, Morrill Hall. Over 10,000 school children each year come for programs in our Encounter Center. This hands-on room features fossils as one of the primary teaching tools. Other inhouse programs utilizing fossils are gallery talks on dinosaurs for school groups and "Sunday Afternoon with a Scientist" which is a monthly series of programs that brings the Museum scientists together with visitors to Morrill Hall.

Because we are the State Museum, as well as the University museum, we have a mission to supply informal science education programs throughout Nebraska. We do this in several ways. We provide hands-on specimens including fossils and associated curricula in prepackaged kits that we call "Encounter Kits". These can be shipped to any school in the state. Also, staff members participate in a wide variety of events such as gem and mineral shows and the State Fair. The State Museum also operates two branch museums which are built primarily around fossils. The Trailside Museum has existed for 30 years in the fossil rich areas of northwestern Nebraska. The Ashfall Fossil Beds State Historical Park is a cooperative program with the Nebraska Game and Parks Commission established because of the magnificent fossil discovery of Dr. Michael Voorhies. These facilities present educational programs for general visitors, as well as K-12 school groups. This past summer we held a pilot program at Ashfall aimed at providing training about fossils and fossil collecting for teachers, amateur and paraprofessional paleontologists, and gem and mineral club members. We are adapting to our circumstances the very successful "Certification Program in Paleontology" from Denver Museum of Natural History.

The goal of our programs as with other natural history museums is to create a scientifically literate population, in our case in Nebraska. This includes creating an educated political system at all levels that can make informed decisions about the environment and the preservation of natural and scientific resources such as fossils. Our hope is also that we are helping create the next generation of scientists. Science is not easy. We must spark an interest and enthusiasm for scientific inquiry at a young age so that these children will stay with the necessary program of education that will last into adulthood.

The basis of these public programs is an area of the Museum seldom seen or thought about by the public. These research collections of the Museum are vast storehouses of knowledge. These collections must be stored in an ordered fashion and must be under the constant supervision of professionals. Most of these

collections are not appropriate for exhibition but are scientifically important because they document the published research of the past and serve as the raw material for future research. Fossil specimens, as with other natural history specimens, are not "used up" when they have research performed upon them. Actually, the opposite is true. The more research performed upon a specimen the more valuable it becomes because it serves to voucher that research. Science requires that studies be repeatable and for specimen-based research, the specimens upon which the research is based must be available.

Of equal value to the specimens themselves is the documentation and data that accompany these specimens. For all fossil specimens, at least the following data must be recorded: 1) precise geographic origin; 2) precise stratigraphic origin; 3) taphonomic relationships; 4) accurate regional geology. Without these data or with the loss of these types of data, the specimens will reach a point where it will no longer have scientific value and can be used at most only for its aesthetic value.

We at the University of Nebraska State Museum are gravely concerned about the future of the fossil resources on our public lands that contribute to our research programs and ultimately to our public programs that lead to public awareness of science, fossils, and the history of life on earth. We have had the opportunity at the Museum to view the destruction and loss of fossils on public lands within our own state. A grant from the Nebraska National Forest, U. S. Forest Service, allowed our staff to survey collecting activities in the White River Badlands in the Ogallala National Grasslands. Members of my staff have documented the illegal removal of fossils and in some cases the deliberate destruction of the less commercially valuable pieces. Some may claim that the fossils were removed by amateurs who were not aware of the collecting laws. However, in several cases the pieces that were removed must have weighed several hundred pounds and in one case the hole that was left could hold a full-sized pickup truck. This is not the work of amateurs on a Sunday afternoon. Do you believe that the individuals who have illegally removed these fossils from our public lands have recorded precise locality and stratigraphic information on these potentially valuable specimens? Our visits to the Tucson and Denver gem and mineral shows and regional gift shops document that these data are not being recorded.

We believe that the commercialization of fossil resources has lead to these illegal acts and will ultimately lead to major problems for our natural history museums. We are slowly, but certainly, losing access to the fossil resources upon which our programs are based. First, we simply don't have the financial resources to compete in this marketplace. We also have ethical considerations. The new Code of Ethics of the American Association of Museums requires that funds obtained from the sale of specimens and artifacts can only be used to obtain additional specimens for the museums collections. Clearly, the museum profession is discouraging the commercial market in museum specimens and artifacts. Finally, the greatly inflated commercial value of fossils will certainly add to the security burden of natural history museums. At a time when museums would like to make exhibits more accessible, they will need to increase security and the most cost-effective method will be enclosing the fossils in cases to separate them from visitors. Even specimens in research collections will need increased security as a recent theft at the University of New Mexico has illustrated.

The profession of paleontology had its roots in amateur collectors in the last century who began collecting fossils for their cabinets of curiosities. Ultimately, some among these amateurs devoted their lives to the study of fossils leading to the origins of the profession of paleontology by the mid 1800's . As the great natural history museums, particularly in this country, began greatly expanding their collections they contracted with professional collectors to undertake expeditions on their behalf. These contract paleontologists were collecting for a specific museum or museums and were expected to preserve standard data with the specimens to preserve their research value. Only in the last 25 years have we seen the rise of commercial fossil collectors. Their primary motive is monetary and will cut all costs that reduce their profit margins. They advertise both domestically and overseas, both privately and via catalogues. They sell to private collectors, interior decorators, gift shops, etc., as well as museums. I find it interesting that the commercial collectors have tried to make it appear that they are allied with the amateur collectors and contract collectors when really their only loyalties lie with the profits to be made. Clearly the long-term relationships among these groups have been between amateur, contract, and professional paleontologists.

I know that the conflict between commercial fossil collectors and professional paleontologists has been characterized by some of the popular media as the modern day version of the rivalry between Cope and Marsh in the late 1800s. I do not agree with this analogy. I tend to agree with one of our famous dinosaur researchers that those people who engage in illegal collecting on public lands, who are willing to change dates of discovery and locality information, who do not keep field records that meet the modern professional standards are really "thieves of time". This was not how Cope and Marsh operated. They were intense, bitter rivals, but their fossils may still be seen in the great museums for whom they worked. The data are associated with the fossils so that they may be researched by our present scholars.

Therefore, to the title of this conference "Fossils for the Future", I would add several subtitles:

- 1) that the fossils be precisely and correctly documented;
- 2) that the fossils be maintained and conserved for a long period of time;
- 3) that the fossils be readily accessible in suitable institutions to all scholars who want to study them.

This is the only manner in which research on fossils may proceed into the future giving us a better picture of the story of the history of life on earth that we can present through our public education and exhibition programs.

ECONOMIC DEVELOPMENT

MARKETING FOSSILS

Charles E. Clay

There are many questions to be answered before we have a sound basis for developing a policy of marketing fossils.

Federal Statutes are very clear about the ownership of veined minerals. There is a different standard for the ownership of oil, gas, and coal. There is no clear policy on the ownership of fossils.

If they are found on private land there is no question under present statutes that they belong to the person who owns the land. If they are on public lands, do the regulations governing the disposal of public property prevail? Is advertising a public auction required? Does the governmental agency have to declare the fossil non-essential or surplus property before disposal as now required? We may not yet have the answers, but at least we can begin the dialogue.

There are many ways to market fossils depending on whether the ownership is individual, public, or by private corporations.

One of the successful examples of marketing fossils is the Mammoth Site of Hot Springs, Hot Springs, South Dakota.

A bit of historic background on the site may be helpful in understanding the operation.

As in many cases the discovery was accidental. Mr. Philip Anderson was clearing land for a housing project. The dozer operator was using the land from a large hill to fill in the low areas for construction. In the process the blade uncovered a 14 foot tusk, along with other bones.

The son of the equipment operator, Mr. Dan Hanson, was a student of Dr. Larry Agenbroad who was teaching at Chadron State College in Chadron, Nebraska. Dr. Agenbroad and Dr. Jim Mead inspected the site. After several days of digging, they determined that it was a significant find.

Mr. Phil Anderson stopped all work on the site until further excavation could be completed. During the years 1975 through 1978 Dr. Agenbroad conducted summer excavations with the assistance of Earthwatch Teams. Each succeeding dig proved the site was an exceptional deposit of Columbian Mammoth. In 1988 Dr. Agenbroad determined that excavation should stop until the site was protected by a building. In 1980 the Mammoth Site Board of Directors was reorganized and a major fund drive started to construct a building over the site.

The funding for the construction of the building is an outstanding example of cooperation between the private sector, State and Federal agencies.

The Mammoth Site Corporation was able to raise \$200,000.00 through private and corporate contributions, the Bush Foundation contributed \$165,000.00 because of the scientific importance of the site, the Economic Development Administration contributed \$395,000.00 due to the creation of jobs in the Hot Springs community, and the State of South Dakota contributed \$50,000.00 to cover the interest payment for the first two years on the bank loan of \$250,000.00 secured by the Mammoth Site Corporation.

The Mammoth Site has certainly accomplished its goal of economic development. The project started with all volunteers and a budget of \$5,000.00. In 1992 the site had seven full-time employees and 29 seasonal employees with a budget of approximately \$600,000.00, most of which stays in the Hot Springs community. It is estimated that an additional one and a half million is spent in the community. The Mammoth Site has had 93,000 visitors so far this year.

Another important aspect of the Mammoth Site is the Educational Outreach Program.

The mission statement of the Mammoth Site is as follows: First, to protect the scientific integrity of the site; second, to develop and disseminate scientific information about the site; and third, to create a meaningful and enjoyable experience for the people who visit the site.

We have a person who visits the area schools presenting a program about the site. As part of the program the children visit the site where they are exposed to various "hands-on" projects. In 1991 more than 250 classes visited the site.

We have a very active program working with foreign scientists. The Mammoth Site pays for their transportation, food and lodging, and a stipend for the visiting scientist. We have had scientists from Italy, the Netherlands, England, and Russia doing studies at the site. The visitor does research with Dr. Agenbroad and Dr. Mead. At the conclusion of their work they jointly publish a scientific paper on their findings.

In 1991 we had requests from 27 foreign countries asking for information on the site. Over the past ten years we have had hundreds of scientists visit the site.

The Mammoth Site Board of Directors feels we have an obligation to support all aspects of Quaternary research. To that end we have established a Quaternary Research Support Institute to assist other scientists in furthering their studies of the region. We feel there is an exciting future for this and other sites yet to be developed. If we can be of help with your project, let us know.

The Mammoth Site has been successful in merchandising fossils by leaving them in place, making sure they are properly preserved and at the same time giving the visitor an exciting peek at an ancient event. May you have as much success with your projects.

Headache or Harvest--Shirley Floden

I would first like to say that I make no pretense of being an expert on anything. Like Barbara Bush "What you see is what you get." I am with my husband a private landowner. I am not a typical private landowner. Anyone that knows rural people knows there are no typical landowners. The one thing that is typical about most of us is that we are all rugged individualist. I have not been elected to represent anyone. We have however for the past 11 years been members of a team of neighboring ranchers that have worked with professionals in our community for the discovery and recovery of local fossils. I can speak for that team. Anyone working with the caliber of professionals that we were privileged to work with could not find fault with this amateur/professional relationship. I know of landowners in other parts of the state working with different professionals that have had the same satisfactory experience. Keeping the fossils for the people of the state of South Dakota has been our ultimate goal. This fact plus being a life member of the South Dakota Historical Society gave me the opportunity the past year and half to serve on their Paleontology Task Force. We have struggled to look at the many sides of the issue of fossils on public land. I am the only private landowner of the group, so I have made it a point to visit with other landowners about the issues. These include cattlemen that use National Forest land, ranchers that use grazing on National Grasslands or Indian Trust lands as well as those that have State lands in their operation. We (my husband & I) have also made it a point to visit fossil areas in other parts of our state and also in several neighboring states. It is all these experiences that have brought me to this point to speak to you today.

A friend facetiously suggested that the way for private landowners to solve their problems is to strap on their trusty six-shooter. I decided a double barrel was better, since I'm not much of a marksman. However I did not come to entertain you. This is a serious issue and the solutions have long range consequence.

Defining the problem.

The states invited to this conference represent vast areas that contain fossil bearing material. That type of land generally is not farm ground. Looking at maps that show the public land, in this case BLM surface management maps. We see fairly solid blocks in National Forest, National Parks, National Grasslands and Reservations. There is however a lot of public land that lies in a checkerboard pattern with the private land. This land is

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likely an integral part of some ranchers operation. Any rancher that leases such lands knows that he shares the use with many other interest. It is this variety of interest where frictions might occur. The private landowners main concern is his herd and its access to grass & water. His livestock is his living. The many other groups, the public (recreation or other), the fossil collectors and scientists, the public land manager and sometimes other interests such as timber, mining and oil, have vastly different interest in the same land. Some of the problems of this multiple use that has been reported to me is as follows: Leaving gates open or cutting fences, moving stock off water, destroying grass by driving off trails or setting fires (catalytic converters), this can certainly raise hob with a livestock operation. One rancher that uses National Forest land says there is more damage to the grass during hunting season than the whole rest of the year. Another operator takes a somewhat opposite stance in that he would at least like to be able to drive his pickup to check his cattle grazing on National Grasslands. Not everyone has these problems but many operators can recite long lists of such depredations. The non rancher may ask "So what's the big deal? Not enough water can dry up a cow causing her calf to weigh less, a steer calf may be set up to have water belly, which means an operation or perhaps even death of the calf. Interference with natural grazing patterns can do the same. Loss of pounds is lost dollars.

Sharing the public land with other interests is perhaps necessary, but having the public wandering into the private that adjoins without permission is a bit much to many landowners. To a lot of the public any land that doesn't have a fence around it is public domain. You remember the map that showed the checkerboard pattern of private and public land. If one is out on some trail miles from a public road and miles from a fence line how do you find the public land? Even landowners sometime have difficulty identifying boundaries between the public and private land. A few years ago my husband and I discovered a seismograph drilling rig set up in one of our pastures. They thought they were on school land. They made this mistake even though the pasture was bounded by a public road on one side and fence lines close by. Needless to say the driller was unhappy to have to move. We were probably even more disturbed than he was. When seeking access to public land it still a good idea to talk to the local landowner, just to keep from getting lost, or causing some hardship for him. Common courtesy means treating the private

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landowner with respect whether going on his private land or going on public land that is part of his operation. Even the land manager who perhaps has every legal right to enter the public land without anyone's permission would be well served to talk to the local operators. The best way to solve problems is to prevent them in the first place. Most landowners willingly help out the person that has a legitimate reason for being where he is. As a rule, unless someone has taken undue advantage at sometime in the past, we are a trusting and outgoing people.

Enforcement: Much of this land is also in very isolated areas, many miles from any kind of local law enforcement or even the nearest neighbor. If permission to collect fossils is given for public land the landowner may be the only one to know whether the collectors remain on the public land. He also needs to know if the parties really have the right to be there. For fossil collectors to say that they are from "The Smithsonian, or the "Denver Museum" or the University of Wisconsin" is not enough. Public Land managers need to keep land operators informed if special interest groups are operating in the area, not only for the protection of fossils. Rustlers have been known to claim to be something they're not just for an excuse to be in the area. If the collecting is done on private land it is the landowner's responsibility to see that the collectors don't stray onto the public land. Perhaps he in turn should have to notify managers of nearby public land if there is fossil collecting in the area. On the large spreads it may be an accident if one knows whether there are collectors on either public or private land. One land owner had a large petrified tree on his land. It was so long that it went into one side of the hill and came out the other. I say he had a tree because one day he drove out into his pasture and some one had hauled it away. This was an operation that would require at least some heavy equipment. A rancher whose buildings are some miles from his pasture land reported that the badlands areas of his ranch that were literally covered with petrified bone had been picked clean. Another couple who have been diligent to report finds on their land said they came out to prospect and found the holes where fossils had been dug and removed. The site on another ranch where the School of Mines had been allowed to collect was picked clean of surface fossils. Another incident not dealing with fossils but beautiful mineral crystals was reported to me. It seems someone representing himself as from a local public institution, (he wasn't) had been collecting these crystals and making money selling them at

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Gem shows in other states. The land owners finally got word on what was going on and stopped it. One of the most disturbing incidents reported to me was the actions of a commercial collector, from another state. He had permission from the landowner to prospect, he found both skull and skeletal material of a fairly common dinosaur, which he apparently proceeded to remove. He did confide to a friend that he didn't think the land owner knew what he had. I was not witness to these incidents but I can furnish the names of those who did. I did personally see the results of destructive collecting off National Forest land of a beautiful titanotheres skull. This probably was the work of amateurs since they apparently were just after the teeth. In getting the teeth they left a hole and the slivered remains of the skull. If in our isolated corner of the world hear about this many problems, how widespread is the problem. It has to be the tip of the iceberg. With fossils bringing in dollars for not only the owner but finders, preparers and marketers there is a gold-rush attitude developing, this can mean horrendous problems for the private land owner.

So far I have tried to explain some of the headaches of fossil collection that face private landowners. I would now like to address my remarks to the private landowner of his/her responsibilities regarding their fossils. I do not question your right to dispose of your fossils anyway you like. I do know that most of you consider yourself as stewards of your land. You educate yourself in all kinds of sciences to be better managers of the land and the products of the land. Most of your energies and resources are dedicated to leaving your property even better than when you acquired it. Make the effort to find out what, if any, your fossil resources are. A simple geology map and geologic time table will give you clues as to what type fossil you might expect to find. The local museums can probably provide examples of what these fossils look like. If you really need the money to "save the farm" or "feed your children" selling these resources is a possibility. First I would advise against trying to remove the fossils yourself unless you have had a lot of experience. You could end up with nothing. Don't think you have to sell to the first collector that comes along. AGAIN be informed. Know who you are dealing with. Double check with more than one source on the value of what you have. Perhaps you can sell with some stipulations, i.e., that you or a local museum receive a replica with documentation of the fossil, that you can be an active participant of the excavation etc. Be sure all agreements are in writing. Be very clear of

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any restrictions or time limits, this will protect both you and the buyer. Make sure you have the clear title to the fossils. If you operate leased land whether public or private don't allow collectors on that land, save yourselves some legal complications. Let the owner do the selling.

There is also a higher road. Most public institutions, museums, universities etc. are not funded to buy fossils or fossil locations. They can however place a value on any that you might choose to donate. That gift could then be treated as any other charitable contribution, if you need a tax break. You can not only save on your taxes but have the satisfaction of making a real contribution to your community or state. I personally know of one case where that has been done to the satisfaction of both parties. I know of another landowner that is struggling about the disposal of her land. She doesn't have fossils but besides the natural plant/animal community she has an interesting geological feature. She could sell to the highest bidder and be done with it but she values the land, she wants to leave a lasting legacy if she can. I am not a legal expert so I will not give legal advice but there are many alternatives to outright sale. You may retain title, with the collector having the right to display it. You are in the drivers seat if the fossils are on your land you can specify whatever terms that are important to you. Again be sure of your legal ground before signing on the dotted line

The real value of these fossils is not in decorating someone's mantle somewhere, not even in their display in a museum, although museums do educate and they do bring people into the area. The real value lies in the knowledge scientist can glean from these fossils. With our growing technology these old bones may not only tell us about the past but may provide clues to the very secret of life itself. This in the long run may be critical to the survival of our species. These fossils can also be the catalyst that will challenge the young mind (be it anywhere from 8 to 80). Our young people need improvement in math & science. What better use for a fossil site than to make it a hands on learning experience for teachers & future scientist. Wouldn't you really like to make that kind of contribution to the future?

Finally to our Governor's, Congressman, legislator's and land managers. We need clear legal definitions as to what are fossils, what determines ownership. We probably need more help in the legal definition of trespass and liability laws. People do get hurt even when just looking for fossils. The private landowner needs protection against liability. When public agencies are

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working in the area we need to know who they are and why they are there. If it is someone posing as a public servant we need some way to know that, too. We need adequate funding for some of our public institutions to provide for proper retrieval of these resources. We need to educate not only the young people, but the public as to the real value of these resources. We need to realize the very real economic value that these fossils represent. Properly utilized they can bring the world to our door. We need to look down the road so that these finite resources are not lost for future generations.

NORTH DAKOTA'S FOSSIL RESOURCE MANAGEMENT PROGRAM AND THE PRIVATE LANDOWNER

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I would like to begin this morning by briefly reviewing North Dakota's Fossil Resource Management Program because I strongly believe that each state, as well as the federal government, must have well thought-out, comprehensive fossil resource management programs before state or federal fossil resource managers can effectively deal with the issue of fossils on privately owned land, or fossils on public land for that matter. Briefly, this is what we are doing in North Dakota.

North Dakota's Fossil Resource Management Program was inaugurated in 1983 primarily in response to concern about the historic and ongoing removal of fossils from the state. This program has evolved to include three primary objectives.

- 1) Education to promote public understanding and awareness of the importance of North Dakota's fossil resources.
Education is an extremely important aspect of our program in dealing with privately owned fossils and fossil sites.
- 2) Research to determine the types of organisms that inhabited North Dakota at various times in the geologic past and to determine the types of climates and environments in which they lived.
- 3) Identification and preservation of North Dakota's significant fossil sites and specimens.

The program is administered by the North Dakota Geological Survey, an agency of the State Industrial Commission.

There are four, separately administered, categories of lands in North Dakota: 1) lands administered by agencies of the federal government, 2) lands administered by the State of North Dakota, 3) privately owned lands; and 4) tribal lands. The North Dakota Geological Survey assumes an active role in managing paleontological resources on the first three of these lands, and we are hoping to become an adviser on fossil resources to the various tribal councils in North Dakota.

FOSSIL RESOURCES ON FEDERALLY ADMINISTERED LANDS

The North Dakota Geological Survey has signed formal agreements with the U. S. Forest Service--Custer National Forest (1986), Federal Bureau of Land Management (1988), and the U. S. Army Corps of Engineers (1991) to cooperatively identify, manage, and protect paleontological resources found on lands in North Dakota under the

jurisdiction of these federal agencies. These are excellent agreements, and I would like to stress that I believe cooperation between federal and state fossil resource managers is essential to effectively manage fossil resources. I hope that there is much discussion at this conference about the need for state and federal interaction.

FOSSIL RESOURCES ON STATE ADMINISTERED LANDS

In 1989 North Dakota's Paleontological Resource Protection Act became law. The salient points of our law are similar to ones in the recently introduced federal bill, the Vertebrate Paleontological Resources Protection Act (S. 3107).

- 1) Significant paleontological resources, primarily vertebrate fossils, are identified in our law as being an important part of North Dakota's natural heritage and that they should be protected.
- 2) Our law places responsibility for management of fossil resources in the hands of the North Dakota Geological Survey. Previously, fossils had been grouped with Indian artifacts and considered cultural resources. At that time, fossil resources were managed by archaeologists with the State Historical Society.
- 3) As a result of this law, a permit is required to collect significant paleontological resources on state lands in North Dakota. Significant paleontological resources generally means vertebrate fossils although there is enough flexibility in our law to allow for protection of significant invertebrate and plant fossil resources too. I am pleased to say that because of this law hobbyist can, with a permit, collect fossils on state lands.
- 4) Significant paleontological resources collected from state owned lands remain the property of the State of North Dakota, that is they remain public property.
- 5) Commercial collecting of fossils is prohibited on state lands in North Dakota.

FOSSIL RESOURCES ON PRIVATELY OWNED LANDS

The State of North Dakota has no jurisdiction over paleontological resources found on privately owned land. Collecting fossils from private property is, therefore, at the discretion of the landowner. I believe that is the way it should be. Private landowners should retain the right to determine what is to be done with fossils found on their property. This philosophy, however, creates problems primarily because of the increasing commercial value of fossils, particularly on the foreign market.

Private landowners are now being faced with the difficult decision to either sell their fossils to commercial dealers or donate them to public supported institutions where they will remain in the public domain. This competition for fossils complicates management of fossil resources because most states interested in retaining their fossil heritage, like North Dakota, cannot compete with commercial dealers to pay for fossils found on private property. We must, therefore, appeal to the private landowners sense of civic responsibility to donate these specimens to public institutions. At this we have varying degrees of success. About all we can offer is a handshake, a note of thanks, and a tax write-off.

I am convinced that landowners want to do what is right, and in North Dakota, at least, their primary concern is for what they believe is right for their family. Landowners often become confused, however, because of all the information or, lets say, misinformation they receive when they seek input about their options. This misinformation can cause major problems. Let me give you an example.

Early this summer I was contacted by a rancher from southwestern North Dakota who had some bones weathering out of the rock in one of his pastures. I visited the site and found that at least a partial skeleton of what appeared to me to be a Triceratops was being exposed in the Cretaceous Hell Creek Formation. Vertebrae, toe bones, part of the frill and so forth were already exposed. I informed the rancher that the find could be significant and offered to excavate the specimen suggesting that he either donate the fossil to the State Fossil Collection, to a local museum, or to another public institution of his choice.

One of the first questions of the rancher was how much is the fossil worth. I told him that it would be difficult to assess the value before excavation and emphasized the importance of the involvement of qualified individuals in the excavation process. I explained to him that the state had no money to purchase the fossil but if donated some sort of tax credit could be arranged. The negotiations went on for some time by telephone.

By the time I revisited the site a few weeks later the rancher had been in contact with at least three commercial collectors. One of those collectors told him that if the skull was there and in good condition he would pay him several thousand dollars for the specimen. What did this mean to the rancher--a fishing trip to Alaska, a new swather, or perhaps even a new house? As a result, the rancher and several of his friends went to the site with spades and grain shovels to dig for the skull. Most of the skull was not there and much of the posterior part of the skeleton that was there was destroyed during the digging. Ironically, it appears that the fossil was not of the relatively common Triceratops but the rare Torosaurus and this would have been an important scientific specimen and possibly worth a great deal of money to the rancher.

Where does the problem lie in cases like this? Who is at fault? Is it the badland rancher surviving the fourth consecutive year of drought? I don't think so. What is the solution? Our educational approach failed in this case. These types of situations are the types of challenges that we face as custodians of fossil resources for future generations.

I would like to close with an optimistic note about a program that we have in North Dakota for preservation of fossil sites on private land--North Dakota's Natural Areas Registry Program. The North Dakota Natural Areas Registry Program was developed by the North Dakota State Parks Department and the North Dakota Chapter of the Nature Conservancy and when fossil sites are involved, the North Dakota Geological Survey takes an active role. The Registry is an important part of North Dakota's Nature Preserves program and relies on citizen-based conservation. The program was created to help preserve important natural areas, in this case, fossil sites in private ownership. Currently there are about 40 registered Natural Areas in North Dakota. Most of them are biological sites, sites of rare or endangered species of plants and animals or unique biological habitats. I am pleased to say that at this time three sites in North Dakota are on the Registry of Natural Areas because they are significant fossil sites.

The Registry is a totally volunteer, non-binding, non-regulatory program. State government officials and Nature Conservancy staff advise the landowner of the significance of their site and provide management advice to the landowner. We will also provide signs stating that the site is a natural area. No payment or receipt of funds is involved in the registry process. The landowners receive plaques from the Governor during a formal ceremony at the Capitol in appreciation for their commitment to protect part of the North Dakota's natural heritage. Owners of registry areas are asked to:

- 1) the best of their ability protect and preserve the registered area;
- 2) notify the State or Nature Conservancy of any threats to the area; and
- 3) notify the State or Nature Conservancy of any intent to sell or transfer ownership of the property.

The landowner may terminate participation in the program at any time, although he or she is asked to give a 30-day notice prior to cancellation.

Federal and state governments cannot and should not be held solely responsible for survival of our significant fossil sites and specimens. Individual landowners must play an integral role in conserving our fossil resources. Without their active participation and commitment we will lose, year by year, more and more portions

of our fossil heritage. And we, as government fossil resource managers, must provide to these concerned landowners attractive options for preservation of fossil sites and specimens, such as the North Dakota Natural Areas Registry Program.

Northern Plains Governor's Conference
Fossils for the Future

Remarks by James Carson
Recreation and Lands Staff Officer on the
Grand Mesa, Uncompahgre, and Gunnison National Forests

August 25, 1992

Thank you Dave for that kind introduction.

Good morning everyone. I am pleased to be the moderator for this session on "Public Land Management". I have two knowledgeable gentlemen here with me today who also will speak on the topic of public land management. I will introduce them shortly.

First, I would like to briefly share a few of my thoughts on this issue.

One thing I feel obliged to say right up front is that we in public land management agencies administer the paleontological resources for all Americans - be they

- The scientific researcher
- The commercial collector
- The amateur collector
- The educator
- The person who wants to see fossils
- The person who just wants to know they are there
- and the person who doesn't know about fossils but learns about them through discovery.

It is hard to discuss the management of paleontological resources in terms of all federal agencies because of their different missions and objectives. The National Park Service policy, for instance, states that:

- Paleontologic resources...will be protected, preserved, and developed for public enjoyment, interpretation, and scientific research.

The Bureau of Land Management objectives ensure:

- Paleontological resources are given full consideration in land use planning and decisions.
- And a variety of uses such as scientific collection and research, recreational collection, and interpretation.

The Forest Service:

- Has no written policy on management of paleontological resources that I am aware of except:

--Regulations prohibiting the damaging or removal of any natural feature and

--Excavating, damaging, or removing any vertebrate fossil or removing any paleontological resource for commercial purposes without a special use authorization.

It appears to me the public land managers (agencies) ought to be able to cooperate and reach similar administrative procedures for paleontological resources. This is true, particularly for those agencies with similar legislative mandates such as the Bureau of Land Management and the Forest Service. I see the following potential areas of cooperation among the agencies:

-Inclusion of paleontological resources as an integral part of the land management planning and decision making processes.

-Scientific research

-Interpretation

-Protection, either through conservation or preservation

-Appropriate legislation or regulation

Towards that end, a recent Memorandum of Understanding has been signed for "Management of Fossils on Public Lands" by the US Geological Survey, Bureau of Land Management, National Park Service, and Forest Service. The purpose of this MOU is to "provide procedures and guidance for communication, cooperation, and research in the management of fossil resources". It also provides for a flow of up-to-date information to redeem land management responsibilities.

Needless to say, there are probably as many opinions on how to manage paleontological resources on the public lands as there are people in this room - at least.

Two of these options will be explained by our speakers today. Our first speaker is John Pojeta, who is Chief of the Branch of Paleontology and Stratigraphy at the US Geological Survey in Washington, D.C.. John served as President of the Paleontological Research Institution from 1980-82, Secretary of the Paleontological Society, and recently finished an invited lecture tour of China. John is especially qualified to speak on his subject as he is one of the writers of the National Academy of Scientists report on paleontological collecting. John ---

Our second speaker is Pat Leiggi. Pat is a long standing member of the Society of Vertebrate Paleontology and is also a member of the Montana Geological Society. He was responsible for the planning and excavation of Montana's Tyrannosaurus Rex. In 1985 Pat became the Chief Preparator of Paleontology, Museum of the Rockies, Montana State University in Bozeman where he is located today. Pat is here to discuss Senate Bill 3107 which has recently been introduced by Senator Max Baucus of Montana. Pat---

Thanks to both John and Pat for their very informative presentations. And thank you for your attention to this important topic of paleontological resources management on your public lands. I hope those of you who participate tomorrow in the issue discussion groups will feel free to voice your opinion on this topic.

Thank you very much.

STATUS OF GUIDELINES FOR PALEONTOLOGICAL COLLECTING

(Invited Comments for the Northern Plains Governors' Conference:

Fossils for the Future, August 24-26, 1992; Rapid City, SD)

John Pojeta, Jr., Chief,

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Governor Mickelson, President Gowen, Ladies and Gentlemen. About 10 days ago, Terri Liestman asked me to speak at this conference about the report published in 1987 by the National Academy of Sciences (NAS) on "Paleontological Collecting" (I); I was a member of the committee that produced the report. I agreed to speak and expanded the topic to the STATUS OF GUIDELINES FOR PALEONTOLOGICAL COLLECTING. Thus, in addition to speaking about the NAS Committee, I will try to bring you up to date on the happenings since 1987 to implement its report.

The modern era of concern about fossil collecting began with the 1976 "Federal Land Policy and Management Act (FLPMA)" (II), which, among other things, charged the Bureau of Land Management (BLM) to manage the lands under its supervision "in a manner that will protect the quality of scientific [emphasis added], scenic, historical, environmental, and archeological values." Subsequently, various interactions occurred between BLM and the scientific community, industry, and hobbyists (amateurs). At least four notable meetings involving the scientific community were held in Farmington, New Mexico (1981); Grand Junction, Colorado (1982); Los Angeles, California (1983); and Boulder, Colorado (1983). I attended three of these meetings. The Los Angeles meeting resulted in a request to the NAS and its operational arm, the National Research Council (NRC) working through the Board on Earth Sciences (BES) to establish a study group on paleontological collecting and its impact on other aspects of land use.

The Academy established the committee in mid-1984 for a 3-year term. The NAS chose 13 committee members as representative of the professional paleontological community, State and Federal governments, the surface-mining industry, and businesses dealing in fossils. Committee members were chosen to provide points of view and not to represent the interests of organizations or institutions. In my opinion, the Academy chose well, because the members did have a tremendous diversity of points of view. Among the 13 committee members were 8 research paleontologists with wide field experience around the world--4 who study vertebrate fossils, 3 who study invertebrate fossils, and 1 paleobotanist. Three of the vertebrate paleontologists had been presidents of the Society

of Vertebrate Paleontology (SVP)--Craig Black, Farish Jenkins, and Peter Robinson--and Craig and Peter are or have been Directors of natural history museums. The fourth vertebrate paleontologist, Don Wolberg, works for a State Geological Survey. Two of the invertebrate paleontologists had been presidents of the Paleontological Society (PS)--Dave Raup and Frank Stehli--and the third, myself, was then secretary of the PS; Dave Raup is also a member of the Academy. The paleobotanist, Bill Schopf, served on the NRC Board on Earth Sciences. Thus, among the research group there was wide experience with fossils, societies, administration, and the Academy. Among the nonresearch group were two lawyers--Sandy Blackstone, who was a former Deputy Director at BLM, and Charlie Roybal, New Mexico Department of Energy and Minerals. Thus, in addition to being lawyers, they had experience in the problems of land management. The remaining three committee members were Hollis Dole, former Assistant Secretary of the Department of the Interior; Sterling Grogan, Manager of Environmental Quality, Navajo open-pit coal mine; and Peter Larson, Black Hills Institute of Geological Research. These three people brought points of view from high level management in the Department of the Interior, from extractive energy-mineral industry, and from commerce in fossils.

In addition to the committee members, there were seven liaison members from the BLM, the U.S. Geological Survey (USGS), the Department of Energy (DOE), the National Science Foundation (NSF), the National Park Service (NPS), the Office of Surface Mining (OSM), and Atlantic Richfield Oil Co. Consultants to the committee included Gordon Everett, from the American Institute of Professional Geologists; Norm Sohl, PS President, 1985-86; Mike Novacek and Bob Hunt, members of the Federal Liaison Committee, SVP; and 10 staff members of BLM. The NRC had up to four staff members assisting the committee. In addition, drafts of the report were circulated to the governing bodies of the SVP and PS and to the Director of the Paleontological Research Institution.

From its beginning, the committee understood that there were several groups or constituencies of divergent interests concerned with collecting fossils, and five such groups were identified:

(1) Research paleontologists, usually associated with universities, museums, and geological surveys; (2) Land managers or owners; (3) Hobbyist (also called amateur or recreational) paleontologists, who do not make a living studying fossils. The hobbyist community is especially interesting because of its diversity. I remember being at a meeting in Manhattan, Kansas (nicknamed the Little Apple), about limiting access to fossil collecting on State lands. A woman attending the meeting was representing the 4-H Clubs. The 4-H Clubs in Kansas try to interest their members in science; one of the ways this is done in Kansas is to take the children on fossil-collecting trips. The representative of the clubs was concerned that legislation limiting access would prevent this educational experience; (4) Businesses that sell fossils; and (5) Extractive industry businesses that use sedimentary rocks, such as coal

mining, building stone industries, stratabound minerals industries, fertilizer and agricultural limestone industries, etc.

There is at least one other constituency--school teachers of Earth Science. Some of these teachers take students on field trips, and all of them need specimens with which to teach about fossils and Earth history. Specimens become worn out and broken and must be replaced. I have spoken with a consultant on secondary school education, who taught for many years in Texas and who worked with the American Geological Institute (AGI) and the USGS in developing educational materials for those organizations. She noted that students relate much better to real fossils than to artificial casts of fossils. Both she and the lady from the 4-H Clubs of Kansas noted the eye-opening experience young people have when they collect fossils. These have also been my experiences in the USGS and when I was teaching. The USGS has prepared several teaching sets of fossil specimens and booklets that are used by secondary schools on short-term loan, principally in Colorado. But most secondary schools and many colleges and universities need to buy teaching sets or receive donations from amateurs.

As the committee developed its dynamic, various observations and facts became apparent and these helped guide the committee's deliberations; some of these are described here: (1) The committee worked by consensus, not by vote, except for the unanimous approval of the final recommendations. (2) The interests of the various constituencies were overlapping and not mutually exclusive. (3) The various constituencies need better communications among one another so that they can be educated about the others' needs and concerns. (4) The two lawyers on the committee diligently tracked down all Federal laws that could be used by land managers to develop regulations about fossils (I-Appendix R), and decided that "ample statutory authority exists for the various federal land managing agencies to protect, manage, and dispose of fossils on public lands;" thus, no new laws are required. Certain fossil localities and lower level taxa clearly need protecting, and the report amply points this out. However, sweeping prohibitions against fossil collecting by region or by formation or by high-level taxon would be self-defeating for many reasons, including the following: (a) Such sweeping prohibitions would prevent university geologic field camps where students are trained in field methods, because most such camps are in the West and many cross public lands. (b) Such prohibitions would prevent amateurs from bringing new finds to the attention of research paleontologists. (c) Such prohibitions could too easily be broken inadvertently, because many fossils are too small to see until after laboratory preparation. (d) Such prohibitions would have severe effects on extractive industry businesses. (5) The expertise to advise Federal agencies already exists in the USGS, which by its charter is charged with studying and reporting on the Nation's fossils. Thus, no new costly bureaucracy needs to be created; three or four new USGS employees would be needed at most

to provide additional expertise to advise land managers. Land managers to work with the USGS are already available in the Federal Government, and interagency coordinating committees already exist between the USGS and BLM and between the USGS and Forest Service; negotiations for creating a coordinating committee between the NPS and USGS are underway. (6) Deciding on the scientific value of a fossil requires judgment and know-how; it is not a checklist procedure. The report stressed that often a fossil's scientific value is not known until it is examined in the laboratory.

(7) For a variety of reasons, too many Americans confuse paleontology with archeology, and education of the public about the difference between fossils and artifacts is a must. The Academy report has a section on these differences, which in part was taken from a Masters thesis written at the University of Colorado, Boulder (III). (8) It is better to follow the long route of education of the public to the needs of scientists who study fossils rather than to attempt the quick fix of enacting Federal legislation punishing people with fines and imprisonment.

The Academy report has been widely distributed; it is presently out of print, although photocopies can be obtained. If enough people were to ask, the Academy would consider reprinting the publication. The heart of the report is 26 pages long. Among the annotated conclusions and recommendations, I make special note of the following: (1) "All public lands should be open to fossil collecting for scientific purposes." (2) "Except in cases involving quarrying, commercial collecting, and National Parks, collecting fossils on public lands should not be subject to permit requirements or other regulation." These statements give primacy to scientific studies of fossils on the public lands, they allow hobbyists to pursue their interests, they clearly separate the National Parks from other public lands, and they note that quarrying and commercial collecting need to be regulated and to follow a permit process. Regulations and permits are the purviews of land managers. The Academy report recommendations develop a hierarchy of collecting methods, which does not impact field camps and hobbyists.

A third recommendation of the report is that "Fossils of scientific significance should be deposited in institutions where there are established...programs in paleontology...There is no justification for requiring that fossils be deposited in an institution in the same state in which they were found..." In the past few years, a chauvinism, or perhaps jingoism is a better word, has developed about American fossils. This jingoism extends to smaller and smaller political entities. "American fossils should stay in America," "Rhode Island fossils should stay in Rhode Island," "Calvert County fossils should stay in Calvert County," etc. Such statements ignore several aspects of the organization of paleontology--(a) American fossils on display in a museum in Wales are fully available for study by any scientist who wishes to examine them, and they have enormous educational value if such

fossils do not occur in Wales. (b) Paleontology is not organized on national, State, or county lines; commonly a leading specialist in a fossil group works in a different state than the one in which she or he collects specimens. This is simply a matter of where one gets a job versus where one's research interests lie. It is in the interest of the science of paleontology to have the person and the specimens being worked on in the same place. (c) All American paleontologists desire to have comparative material from other parts of the world, otherwise their work becomes parochial. How do we get comparative material, if we will not exchange with others?

Perhaps the part of the Academy report that has received the most comment is the section entitled "Do Fossils Constitute a Nonrenewable Resource?" The section is full of qualifiers and aptly shows that determining the scientific value of a fossil requires judgment and know-how--not a check list. Although it is true that many vertebrate fossils are rare, not all are rare. Additional specimens of various species are readily obtainable--in the Eocene Green River Formation of Wyoming there are enough specimens of the fish Knightia to give everyone in the world several. Some of the oreodonts from the middle Cenozoic of the northern high plains were extremely abundant creatures that are known from many thousands of specimens. Thorpe in his monograph of these animals (IV) noted, "In fact, skulls of Merycoidodon are perhaps the commonest middle Oligocene fossils of the Great Plains." In addition, every fish scale, every shark tooth, every turtle scute, or every dinosaur bone fragment is not a scientific treasure--thus, judgment and know-how are required to make these distinctions. To press for protective legislation specific to a high taxonomic category such as vertebrate fossils becomes even stranger in view of the Smith and others article published in the May 29, 1992, issue of Science magazine (V), which concluded that the almost ubiquitous Cambrian to Triassic microfossils known as conodonts are vertebrates. Conodonts are among the most useful fossils for establishing biostratigraphies, for geologic mapping of older Phanerozoic rocks, and for estimating the oil and natural gas potential of these sedimentary rocks. The Science report is the capstone to work that has been ongoing for several years indicating that conodonts are phylogenetically related to vertebrates. Already a colleague of mine in the Northwest has been prevented by a Federal land manager from collecting samples that might contain conodonts.

The Academy report was published, publicized and circulated throughout the various constituencies. It was a front door approach to the problem of collecting fossils. I could go on with discussing the Academy report and committee; however, I refer you to an editorial about the report that I published in 1988 (VI) for additional insight into the dynamics of the NAS committee. I would now like to turn to what has happened since the publication of the Academy report

(1) After the NAS report was issued, it was accepted by the two most recent Secretaries of the Department of the Interior, Donald Hodel and Manuel Lujan. It is the operative document for the USGS, BLM, and NPS of the Department of the Interior and the Forest Service of the Department of Agriculture.

(2) To its credit, the BLM undertook a negotiated rulemaking procedure, complete with facilitator, to produce draft regulations based on the Academy report recommendations. This procedure went quite far, and at the final meeting hosted by the BLM, in Salt Lake City, Utah, in May 1990, three representatives of the SVP agreed to the consensus of the negotiated rulemaking process and wrote the words they wanted BLM to use in producing draft regulations concerning vertebrates. The BLM agreed to have an extended period of comment of twice the usual length when the draft regulations were published in the Federal Register.

(3) The Paleontological Society has a history of outreach to the nonresearch community that began before the Academy report with the initiation of the Strimple Award for contributions to paleontology by amateur paleontologists--to date eight such annual awards have been given. The society has extended this outreach by including an article about amateur paleontology in its newsletter. The article is written by a member of the American Federation of Mineralogical Societies. The society often has one or more members attend the annual meeting of the Mid America Paleontological Society (MAPS), and various gem and mineral shows. The desired result is to get to know one another, exchange points of view, and eliminate some of the concerns that separate the groups. Most recently, the PS has instituted a Presidential Citation Award for such actions as quarry operators giving paleontologists time and/or help to remove a valuable fossil find; the first such award was made in 1992.

(4) On May 4, 1992, a Federal memorandum of understanding (MOU) on "Management of Fossils on Public Lands," (VII) became effective. The MOU is among the USGS, BLM, NPS, and the Forest Service. It has been widely distributed throughout the Federal agencies and has been published in the SVP, PS, and MAPS newsletters. Among other things, the MOU creates "The Federal Interagency Paleontological Working Group" to deal with paleontological problems.

(5) Also in May 1992, President Bush signed Public Law (PL102-285), the National Geologic Mapping Act of 1992 (VIII). This act requires the USGS to maintain a "National Paleontological Data Base" (NPDB). The USGS committee to establish the NPDB has completed its work, and its report is now being reviewed. When review is completed, the report will be circulated among the paleontological community for comment as to the suitability of the NPDB for use and input by other organizations.

I trust that my remarks have introduced you to some of the

complications one faces when dealing with fossil collecting-- 4-H Clubs, secondary schools, hobbyists, land managers and owners at all levels, research paleontologists, scientific organizations and administrators, businesses that sell fossils, scientific societies, and multimillion dollar extractive industries all have vital interests in decisions that are made about collecting fossils. I encourage all of you to read and study the Report and continue its implementation. -30- .

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The Vertebrate Paleontological Resources Protection Act / Senate Bill 3107

By Patrick Leiggi

Our nation's vertebrate paleontological resources provide invaluable research information to the international scientific and educational communities. They offer the enjoyment of learning to generations of private citizen's and to millions of museum visitors whose thirst for knowledge are quenched by our nation's natural history museums with educational exhibits that are provided by the paleontologic scientific, educational and amateur communities. Although all vertebrate fossils have been protected by federal law on public lands since 1906, funding for and management of vertebrate fossils are not sufficiently regulated as are archaeological resources and, consequently, are being mined and sold, much the same as any mineral resource. In the process, much of the scientific information is lost, and frequently vertebrate fossil specimens leave the United States for display or private collections in foreign countries. The staggering prices professional commercial collectors are receiving is fueling the fossil market. If it hasn't happened already, vertebrate fossils could become the nations last "gold rush".

This brings to mind a very important question. Are vertebrate paleontological resources an irreplaceable national treasure of invaluable scientific and educational importance? Or, are they saleable commodities?

The 1987 report on Paleontological Collecting published by the National Academy of Sciences described fossil resources as renewable resources. This definition of fossil resources has created controversy within the paleontological community. In my mind it is difficult to understand how extinct forms of life can be renewable. I have spoken to members of the committee that were responsible for the NAS report. When asked for their definition of renewable fossil resources, they replied by saying, "there are enough Green River fishes for every person in the world". This may be so, although, my understanding of the term renewable means, "replenish" or to "make again". What members of the NAS committee on paleontological collecting should have stated was that, "in some rare cases, vertebrates such as the Green River fishes are abundant but certainly not renewable". What I would like to know is, "if vertebrate fossils are renewable, then why were we approached by a Japanese company that offered 4 million dollars for our T. rex before it even got into the door?" If vertebrate fossils are renewable, who in their right mind would want to pay that kind of money? The reason why professional commercial collectors are receiving so much money for vertebrate fossils is because they know that these resources are in fact rare and non-renewable. The NAS report could have been more useful, had the findings been sent to the scientific and educational paleontological community for review prior to publication.

The NAS report states that a uniform national policy on paleontological collecting should be adopted by all federal agencies, and to that end, during late June of this year, I attended the annual

meeting of the Paleontological Society in Chicago where I publicly announced the writing of the "Paleontological Resources Protection Act", a bill designed to protect our nations "fossils for the future". During the panel discussion we heard the concerns of amateurs, commercial fossil dealers, scientists and educators. As a result of those meetings and later discussion, there have been several re-writes of the bill now entitled the "Vertebrate Paleontological Resources Protection Act" that was introduced to the United States Senate on July 30 of this year by United States Senator Max Baucus of Montana. This law is for the protection of vertebrate fossil resources on public lands, not private lands.

Public lands are owned by the "People of the United States" and managed by the United States Government for the "People". Unfortunately, year after year vertebrate paleontological resources are illegally collected from public lands. The reason for this? There are no adequate laws to deter illegal collecting of vertebrate paleontological resources on public lands. The 1906 Antiquities Act is vague and time after time irresponsible fossil collectors are let off the hook even though they knowingly break the law. Who are these irresponsible collectors? They can be an individual who is out to make a quick buck, or a commercial fossil firm that has no regard for the law, and yes, scientists who knowingly collect fossils on public lands without a permit.

Vertebrate paleontological resource protection must begin at the national level through the adoption of legislation which would make it illegal to collect vertebrate fossils on public lands for commercial purposes. All of us, the entire paleontological community have failed by not responding to these issues more seriously and now is the time for all of us to get involved and accept the responsibility in making sure that all vertebrate paleontological resources on public lands will be protected for future generations of Americans by supporting the "Vertebrate Paleontological Resources Protection Act."

Today I have been given the task, while the future of vertebrate fossil collecting on public lands is being discussed at this conference, to highlight key points of Senate bill 3107, the "Vertebrate Paleontological Resources Protection Act." A bill that represents the needs and concerns of the scientific, educational, amateur and professional commercial collecting communities. A bill that demands the respect of America's natural heritage.

I would first like to point out that these laws are not new and this bill clarifies present regulations. This legislation does not effect invertebrate or plant fossils. It establishes federal protection for vertebrate paleontological resources found only on public lands, lands that are owned by the the people of the United States and managed by the United States Government. In no way does this bill effect private lands and, therefore, does not violate the individual rights of private landowners. It recommends that state-owned and tribal lands adopt these policies for the protection of vertebrate fossil resources.

It maintains that all vertebrate fossils found on public lands remain the property of the United States Government as a public trust. Vertebrate paleontological resources shall be funded and managed separately from other resources such as cultural resources. Permits to excavate or remove vertebrate paleontological resources will be issued by federal land managers to anyone for the purpose of scientific research, public education, and public display. I should remind you that any private citizen who wishes to obtain permission to collect vertebrate fossils on public lands may do so for their own educational and learning experience. Permits will not be issued for commercial purposes, however, for the first time reputable commercial firms as determined by federal land managers may be hired by American institutions to conduct field work on their behalf. This opens the door for granting agencies to provide funds for professional commercial firms to carry out paleontological research on public lands provided a suitable repository is designated for the care of the resource in perpetuity. Criminal penalties for those who knowingly break the law will apply. This applies to everyone, including the scientific community. And finally, this bill recommends that all U. S. paleontological societies whether scientific, educational, amateur or professional work together with federal land managers to develop permanent and broadly-based educational programs for the benefit of the American people.

The bottom line is this..... public lands are the only lands in the United States where vertebrate fossils can be protected for future generations of American scientists, educators, amateur paleontologists and private citizens. If we do not work together now to insure the

future of these important rare, non-renewable natural resources, we will all end up having to pay market prices for the enjoyment of working together and learning about our earths living history. Remember, by supporting this bill all vertebrate paleontological resources found on public lands will be owned by the people of the United States of America and shall be protected and managed by the United States Government for you.

The organizers of this conference have done a fine job in allowing all of us to share our concerns about America's fossils, and they invite you to make useful comments regarding Senate Bill 3107 in tomorrows workshop on public land management.

Issues of Preservation Associated with Vertebrate Fossils on U.S. Public Lands

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"Preservation" is a word in English that has multiple meanings and shadings, many of which are applicable to issues associated with vertebrate fossils. I presume, however, that I was not invited to talk today about such things as what kinds of storage-trays or -cases to preserve fossils in, what brands of sealant will preserve old bones indefinitely, or what gauges of baling-wire one should use in preserving a dinosaur skeleton in life-pose. Rather, I will look at the broadest issues of "preservation" that deal specifically with *access* to vertebrate fossils that still exist, as yet uncollected, on public lands (especially federal) within the United States of America. Although my perspective comes from that of a professional associated with public education/research in vertebrate paleontology, I claim to represent the formalized viewpoints of no particular agency. My presentation will be in overt opposition to the commercial collection (for purposes of private sale) of vertebrate fossils from public lands.

So what *is* a "professional" in vertebrate paleontology? I present in Table 1 a comparative list of criteria which, when used in combination, can almost unfailingly differentiate "professional paleontologists" from "commercial dealers." These distinctions lead directly to the heart of issues dealing with appropriateness of access to, and preservation of, vertebrate fossils occurring on public lands.

I feel that the distinction between "professional paleontologist" and "commercial dealer" is real, important in practical and cultural senses, and should be recognized generally by land managers. Furthermore, I believe that such distinctions challenge us individually, and as a society, to evaluate the relative importances (in regard to resources of vertebrate fossils remaining on public lands) of (A) short-term private monetary gain, and (B) permanent public access to educational/scientific information. The philosophical issues involved with protection differ little between vertebrate paleontological and archaeological resources (see G.S. Smith and J.E. Ehrenhard, 1991, Protecting the

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past: CRC Press, Boca Raton, xxviii + 314 pp.). Vertebrate fossils often are no less rare, nor more expanded in distribution, than artifacts of Man; paleontological treasures are of no less value to our cultural heritage than archaeological treasures.

Table 1. Contrasting features of professional paleontologists and commercial dealers.

<u>Professional Paleontologists</u>	<u>Commercial Dealers</u>
Underlying motives for general activity Long-term research, leading to scientific knowledge for educational use at all levels, and preservation of relevant data	Monetary profit
Necessary expertise Advanced scientific training in geosciences, biosciences, and paleontology; practical field experience	Practical field experience in prospecting and collecting; minimal scientific training
Scientific peer-review Consistent involvement, from both directions	Virtually none
Purpose for collecting fossils To approach specifically-posed scientific questions	Sale
Accessory field information gathered Structural geology, sedimentology, taphonomy	Virtually none
Quality of locality data Credibility dependent upon absolute accuracy	Real need only for indication of legality
Ultimate disposition of discoveries Permanent, physically associated, and geologically/geographically documented collections, with guaranteed public access	Mostly to private domain, dispersed fossils, negligibly documented
Nature of press-releases Dedicated to <i>science</i> of discoveries	Often involve other, self-serving purposes
Name of associated organization Reflects true purposes of existence	Sometimes intentionally misleading

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I was asked specifically to address today the recommendations within the 1987 report entitled "Paleontological Collecting", written for the Board on Earth Sciences of the National Research Council by the "Committee on Guidelines for Paleontological Collecting" (National Academy Press, Washington, D.C.). Were I to actually do so, this would be my third time through the same process. I am reluctant to be so repetitive, however, because of historical reasons, and because of the importance of more recent events, as explained below.

First, I was asked by the National Research Council to serve as a formal external reviewer for an advanced draft of the report. My review came by way of a 15 page letter (dated November 28, 1986) addressed to Dr. William E. Benson, Staff Officer for NRC's Board on Earth Sciences. Receipt of my review was never acknowledged, nor were any of my included suggestions incorporated within the final, published report. A complete copy of that review is available from me upon written request. Included below, however, is a verbatim copy of "Part 3" (pages 14-15) of my letter, intended as a summarization -- as will be obvious, I viewed the report as a most peculiar-looking camel, indeed:

"The NAS/NRC Committee on Guidelines for Paleontological Collecting was presented the broad and demanding task (see charge on p. 8 of report) of studying problems of access to, and preservation of, scientifically important fossils that may be threatened by land disturbance, and developing reasonable guidelines for their preservation in the form of a report useful to scientists, industrial concerns, and regulatory agencies. These sorts of issues are certainly soluble through interactions of common sense plus reasonable give-and-take. The Committee's job was made much more complicated, however, by expanding its sphere of concern beyond its actual charge to attempt reconciliation of issues of science with interests of commercial fossil collectors. The Committee thus attempted to do more than its charge. But in part because of the generally inimical goals of scientific versus commercial use of fossils, I suggest that, in final evaluation, the Committee actually accomplished significantly less than its charge. Reasons behind establishment of the Committee were weakly presented (Appendix J), and the report exaggerates the spirit of interference to scientific inquiry that is typically exhibited by managers of public lands. A general theme of the report is deregulation of collecting activities, based upon concepts that fossils: (1) are not rare; (2) do not constitute a resource; and (3) are renewable through natural processes of erosion. Although these concepts certainly apply to many species of microfossils and macroinvertebrates, they seem foreign, even ludicrous, when applied to most species of fossil vertebrates. The Committee attempted to keep its deliberations general, as though applicable to all forms of fossils; but through this experience it has become clear that collecting procedures and management problems for vertebrate fossils have much more in common with those of archaeology than with many other varieties of paleontological resources. The document is disappointingly superficial, and unlikely to be useful as a practical and substantive guide for governmental policy-making. It is not reflective of needs by land managers for quality information. The report sidesteps the important concept that stewards of public lands may need sound scientific knowledge of local resources before intelligent land-use decisions are possible. Recommendation against paleontological inventory is made on the basis of misconceptions about what is generally entailed within a survey. Although the report signals a dramatic shift away from

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the existing precedent of generally disallowing commercialization (privatization) of paleontological resources on federal (public) lands, a clear scientific or philosophical reason for the shift is not provided. Recommendations provide absolutely no effective vehicle for protection of scientifically valuable paleontological localities; simple designation as a National Natural Landmark will not do the job. The report does not serve the best interests of the scientific discipline of vertebrate paleontology. I recommend that the report be rejected in its present form."

Today, nearly seven years after having written that review, my comments on the inadequacy of the report have proven to be correct. Stewards of America's public lands are even more awash in a sea of paleontological uncertainty than in 1984, when the NRC committee was established.

My second approach to review of the NRC report was in an invited presentation to National Park Service personnel at the "First Conference on Fossil Resources in the NPS", held in 1986 in Vernal, Utah. Although proceedings of that conference were to have been published, that never came to be. Nevertheless, a 12 page unpublished "preprint" of my contribution (which is focused upon concerns of NPS), is available from me upon written request.

I see little point today in going through, item-by-item, NRC's ten recommendations yet another time. It is my view that the NRC report is essentially moot in light of subsequent history; it certainly is not being taken as credible by most managers of public lands, or by the most relevant professional society. In support of the moot nature of the NRC report, I cite three current examples of formally expressed attitudes. First, the brochure for this very conference refers to "... finite, irreplaceable, vertebrate fossil resources." Such wording is wholly contrary to major thrusts within the NRC report.

Secondly, the Executive Committee of the Society of Vertebrate Paleontology on June 6, 1992 unanimously passed the following resolution:

"WHEREAS the Society, according to its Constitution, is organized exclusively for educational and scientific purposes to advance the science of vertebrate paleontology, especially in North America, and

WHEREAS the Society has affirmed that vertebrate fossils are a nonrenewable resource; that permits to collect vertebrate fossils on federal lands should be required of all individuals; that fossils acquired through these permits should be available for study in universities and museums as part of the public heritage, and

WHEREAS the Society has affirmed that commercial collecting of fossil vertebrates on federal lands should be prohibited, and that scientific values of fossils on federal lands must take precedence over more transient commercial and recreational values (Society News Bulletins #148, pp. 11-13, #151, p. 12);

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THEREFORE BE IT RESOLVED by the Executive Committee of the Society that the collection, preparation, display, and sale of vertebrate fossils taken from federal lands within the United States by commercial interests be prohibited by federal statute; that suitable penalties of consequence be adopted to further discourage such commercial activities; that members of the Society who engage in commercial collection and sale of vertebrate fossils from federal lands be notified that such activity is in conflict with the stated position of the Society; and that continued commercial collection and sale of fossil vertebrates from federal lands following the aforesaid notification shall constitute grounds for consideration of expulsion from the Society (according to the procedure indicated by Article 2(b), By-Laws of the Society, Society of Vertebrate Paleontology News Bulletin #153, October 1991)."

That resolution, from the only relevant organization dedicated to educational and scientific purposes of the discipline of vertebrate paleontology, is diametrically opposed to the letter and spirit of the NRC report.

Finally, United States Senate Bill 3107 was introduced to the President on July 30, 1992 by the Honorable Max Baucus, Senator from Montana. This is referred to as the "Vertebrate Paleontological Resources Protection Act."

The purposes (p. 4-5) of the bill are:

- "(1) to secure, for the present and future benefit of the people of the United States, the protection of paleontological resources and sites that are on public lands;
- (2) to ensure that all vertebrate fossils discovered on public lands remain the property of the United States;
- (3) to provide incentives and opportunities for amateur and other private paleontologists to collect fossils on public lands, thereby reducing paleontological losses resulting from erosion, theft, and other scientifically unacceptable means; and
- (4) to foster increased cooperation and exchange of information among--
 - (A) Federal and State governmental authorities;
 - (B) the professional paleontological community;
 - (C) amateur collectors; and
 - (D) private individuals having collections of paleontological resources and data.

The congressional findings associated with S. 3107 (p. 1-4) include:

- "(1) paleontological resources on public lands and Indian lands are an accessible and irreplaceable part of the heritage of the United States;
- (2) these resources are increasingly endangered because of their commercial attractiveness and because they are rare;
- (3) Federal laws in existence on the date of enactment of this Act do not provide adequate protection to prevent the loss and destruction of these paleontological resources and sites resulting from uncontrolled excavations and pillage;
- (4) amateur collectors are a vital part of the scientific and educational communities;
- (5)(A) there is a wealth of paleontological information that has been legally obtained by private individuals for noncommercial purposes and that has been voluntarily made available to the scientific community; and
- (B) this information has been an invaluable contribution to the advancement of paleontological science in the United States;

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(6) the activities described in paragraph (5) by private individuals, particularly amateur collectors, should be encouraged and facilitated;

(7) paleontological resources--

(A) are nonrenewable resources;

(B) are natural aspects of our national heritage;

(C) have scientifically significant value; and

(D) have important educational value.

(8)(A) access to paleontological resources on public lands should be provided to professional and amateur paleontologists for scientific purposes; and

(B) a mechanism to exchange scientific information between the professional and amateur communities should be adopted;

(9) those resources that are scientifically significant should be placed in suitable repositories, including museums, universities, colleges, and other educational institutions;

(10) when housed in the repositories, the resources should be available for scientific study and educational purposes;

(11) each Federal agency should adopt a national policy on paleontological collecting on Federal lands that is consistent with--

(A) the specific Federal mandate of the agency; and

(B) the protection of vertebrate fossils pursuant to this Act;

(12) each State should--

(A) adopt a uniform policy on paleontological collecting on State-owned lands; and

(B) appoint a designated State paleontologist;

(13) each Indian tribe should adopt a uniform policy on paleontological collecting on the lands of the tribe; and

(14) paleontological societies in the United States and Federal land management agencies should develop permanent and broadly based educational programs to--

(A) share information with landowners and commercial and amateur collectors of paleontological resources regarding--

(i) paleontological resources;

(ii) the research needs of professional and amateur paleontologists; and

(iii) the legitimate role of commercial collectors on private lands; and

(B) foster scientific education at all educational levels."

The letter and spirit of S. 3107 (the "Baucus Bill") could hardly be more removed from recommendations of the 1987 NRC report. Crucially, the bill recognizes the uniqueness, rarity, and irreplaceability of vertebrate fossils to the educational/scientific **public** heritage of the United States of America. Secondly, it recognizes that policies regarding fossil collecting should be consistent with the specific federal mandate of the agency. Finally, the bill recognizes the severity of increasing endangerment, by way of privatization from commercial dealers, to federal vertebrate fossil resources.

To me, the Baucus Bill represents an enormous step in the right direction, and my hope is that this conference will shift its focus to S. 3107, and away from the conceptually superficial and procedurally unsatisfactory report from the National Research Council.

ISSUES OF PRESERVATION

A newspaper article (Casper Star-Tribune, July 21, 1992, p. B2) issued from the New York Times News Service leads me to a final, personal viewpoint. The article relates that some individuals, including paleontologists and commercial dealers, say that more restrictive legislation on vertebrate fossil collecting from public lands would lead to "elitism." Is such a claim realistic, or is it merely misrepresentational hyperbole? Who, indeed, are the *real* elitists? First, consider that Senate Bill 3107, while protecting permanent public educational/scientific access to vertebrate paleontological resources, simultaneously strongly endorses the importance of collecting activities by members of the amateur community. Secondly, as a university professor in the State of Wyoming, my salary simply would not allow me to bid competitively on the open market against wealthy individual buyers or against domestic/foreign corporations for private purchase of rare specimens. Similarly, neither would my university have the resources to bid competitively, even if the ethics of using State funds somehow could be justified. But with heightened protection of our *public* resources, we could *all* benefit, *every* U.S. citizen, *permanently*, from new paleontological discoveries made on public lands. If that kind of access is what "elitism" is all about, I am an unabashed elitist, and please give me lots *more* of it!

-- 30 --

Gregory L. Garon

Museum Director, Timber Lake and Area Historical Society

Instructor, Timber Lake High School

As a true educator, I do not have a specifically written text of my speech. I do have my outline which eliminates all the wordy noise educators use.

My main focus was not to address the Max Baucus Bill directly, as so many others, more qualified, will seek to sway the masses in a pro or con direction.

1. I am not speaking for the Timber Lake and Area Historical Society but rather as an individual. (relate my experience and humble beginning in the world of paleontology in third grade and later the School of Mines)

a. Partial problem: Amateur vs Professional

General Misconceptions

1. professionals must poses and educated field degree
2. must have a institutional affiliation
3. must have institutional funding
4. must poses complete knowledge of paleontology
5. finds are displayed in museums

Amateur Misconceptions

1. lack educational degrees, self taught
2. interest in fossils is purely personal
3. funding comes form sales at 'swap meets'
4. minimal knowledge, at best
5. finds are hidden in garages and not shared with the public

audience at this point should be upset as they try an pigeon hole themselves and try to equate their field experience to what others profess as knowledge of paleontology.

b. Differences I, as an educator, consider important

Ethics

1. concerns itself with:
 - proper permission to seek sites
 - proper site preparation
 - correct and complete field notes
 - proper care for a specimen
 - complete fossil identification
 - dissemination of information

Education

1. concerns itself with:
 - Proper schooling in field paleontology (practical)
 - willingness to share new information
 - continual educational awareness
2. I believe these misconceptions to be invalid with most individuals that are considered amateurs. The present definition of an amateur, 'one who does paleontology for the love of it', is most inappropriate. Most amateurs, are true professionals in actions, stature and in relationships with the scientific community.
3. It is necessary for the scientific professional and amateurs to realize genuine mistrust that exists between the two communities. A new alignment must be forged for the future of paleontology as the present problems will not be solved in the near future, with a Senate bill or not.

c. Collective answer:

Ethics

social - it is necessary to consider just who will be the future of the paleontology and what direction they will follow - consider the youth

scientific - consider the need for present knowledge to the future and how it may be used

just how will paleontology fit in as an interdisciplinary science in education of the future, there is a need for adjustment in the future goals

commercial - the paleontological community needs to rediscover the use of reproductions and inform the waiting world, this is what you will buy for display.

educational foundations need to meet and accept the local 'amateur' as an equal partner in science

education - understanding for the future comes about by education of the youth in the present.

(cite examples of 2 nd grade students doing good field work in cooperation with the local historical society and paleontologists) (note the interaction of our school with the School of Mines, SDSU and others as educational cooperation for the future of Paleontology)

workshops for interested individuals at presented by institutions or individuals in the 'know' would certainly serve as a window to knowledge.

d. Conclusion

It is necessary for a mutual acceptance of the amateur to the professional community, if they are willing to participate as equal partners with common goals. No problem we have today will be solved in a select conference such as this, but it is a great start. I feel, as and educator of 20 years, education has a power, usually understated, to meet the challenges of the future. Let us not forget that your science background probably did not come from the 'ivory tower' or the 'garage' alone. Remember your Mrs. Brown in third grade? Share and disseminate your collective knowledge.

When I talk about amateur collectors, I am enthusiastically including myself. I started very early at five or six years of age. We had an area that ran through our farm where you could find all kinds of "neat stuff". I would go down and dig something up and drag it back to show family and friends. I grew up right next to the Le Grand Quarry in Le Grand, Iowa, which has produced world-famous crinoids. So paleontology was always of great interest to me.

As an educator, I see the value of how those activities spurred my enthusiasm. Going out and digging, finding, and doing science instead of just reading it out of a book is not just very important, it is an absolutely necessary part of any good system. When we talk about amateur collectors, I'm very much a part of that group. An amateur collector is not necessarily less experienced and is surely not inept. Amateur collectors are a major resource for our scientific community. Amateur level collectors go into a variety of categories. These range from a little kid who finds something in the field and takes it home, to an individual who buys a type specimen. The title amateur collector includes my examples, plus everything in between.

For me, fossil hunting, finding, and identification research are the parts of paleontology that are the most enjoyable. In that way I may be a bit of a purist. Within these parameters there are unlimited levels of expertise, each level having its own unique purpose. As an amateur collector, I feel that I have a duty as an educator. I feel that I should expand paleontology, whether it is talking to a friend, a family member, or a neighbor. Paleontology is something I should share with all of them; I can let my enthusiasm infect them. There is nothing more contagious than enthusiasm.

I feel I have a responsibility to my community, to schools, and to civic groups. These organizations ask for shows or demonstrations regularly. All these endeavors are an amateur collector's duty. It is an essential part of our purpose and social responsibility to honor these requests. The whole theme of this conference, is **Fossils for the Future**. If there is going to be a future in fossils, we must increase social awareness and responsibility in dealing with this valuable nonrenewable resource. Besides, it is just enjoyable showing kids that science is exciting and that there are all types of fun in this world.

As amateur collectors, we serve as an extension for the "professional" scientific community. Many important finds are made by amateurs. If you have 10,000 eyes out there, that is a great deal better than ten eyes. As amateur collectors, we have to present a concerned and professional position. We can't act like the irresponsible person who tramps down a dry creek bed, knocks a bone out of the wall, takes it home in his truck, and throws it in the garage. This is not a scenario of an amateur collector. By some unscrupulous standards it is, but it is not. If we are going to be responsible amateur collectors, we have to deal with a vast variety of problems and there are some very serious ones that need to be addressed.

These problems include inaccurate documentation, or worse, no documentation at all. What might be an important key realistically and scientifically becomes a lost specimen without proper documentation. If you can't document it and you can't give accurate information on it, it doesn't do anyone a great deal of good other than maybe get a few oohs or aahs out of a high school or a grade school student. Worse yet, it could just become a dust catcher that occupies a spot on somebody's mantel. The fossil becomes lost to the public, a treasure wasted. I hate to see this kind of indiscriminate behavior. Partial collection is also a problem with amateurs. Some amateurs will go in and take just part of an organism, a skull, maybe a few vertebrate, and not even record or research the site. Improper collection is another problem. Indiscriminate collectors will go in and pop something out and if it doesn't break up that's fine, but if some of it does break apart that's also fine with them. They would merely reply, "We will find another one." But those actions give good amateur collectors a bad rap, a very bad rap. It portrays all of us as looters of the past, not preservers.

One of the most responsible things we can do is to have a good clearing house mechanism, some way to organize what we find in a specific area. If I am a "professional" and I know that many amateurs have been collecting in this area, I should be able to find records on what has been collected. This clearing house would serve as a line of communication to prevent loss of valuable specimens. In order to do that, there has to be accurate documentation of the site and specimens.

If we don't eliminate our problems, we are doing an injustice to the sciences. I am not talking about professional idealism, I am talking about the basic precepts of science as a whole. I believe very strongly in science as a basic fabric of our lives. As a group, we are self-regulatory; however, that doesn't always work. I am not a big brother person. I don't like someone telling me how to put on my shoes, how to tie my tie, or even telling me how fast I can go on the interstate. I don't like that. I am a very independent person. But, if a premise is important and we are going to serve our society as a whole, we have to have regulations that may cause us some inconvenience. You and I know that there are unscrupulous people out there, people who really do not care about anything other than how much a specimen is worth on the open market. They will take a skull and not say where it was from or what it is, put it in their house or sell it to the highest bidder. But this type of irresponsibility is wrong and must be changed immediately. I see unified regulations as the only viable alternative.

We need some way to guarantee simple fossil identification and a functional paper trail on all significant finds. A paper trail could be horrendous to follow, but to have correct documentation on all specimens, enabling someone to use these records for needed information would be wonderful. With good field notes we could find out where the fossil was taken and who removed it--this would be invaluable. There are abuses and I don't mean some youngster going into a national park and picking up a small invertebrate fossil and putting it in his pocket, which we all know is illegal. But if we don't do something about severe abuses, such as collecting fossils without a permit or taking specimens without landowner permission, we will have severe repercussions in the future. What if someone were to lose a vehicle that the fossil was being transported in? Is that too severe? I don't think so, because this kind of

behavior will cause all the rest of us a great deal of inconvenience and professional liability.

An amateur collector is a very integral part of the scientific community, whether collecting on public or private lands. On private lands fossil collectors need to cultivate a responsible relationship with the owners and accurately inform them of their findings. On public lands today, people may collect, but some are not collecting properly and are going to cause everyone to suffer the consequences of what they're doing. What is wrong with having a permit that will make sure that everyone collecting has at least minimal skills to do it properly. You must have a license to drive or hunt, and must exhibit minimal proficiency before you may obtain one. What is wrong with having minimum proficiency requirements to help preserve our nonrenewable fossils.

There must be parameters to encompass the collection, organization, and preservation of our fossils. Our public lands must be protected. As far as our private lands, that is up to the landowner. I do not believe that "big brother" should come in and make that private landowner do anything that concerns his property. The utopian idea that I have heard presented, that "good" rational education and "good" rational people will make all the right choices is wishful thinking. Education hasn't stopped drugs, illegitimate pregnancies, or any other social ill. You say these concepts are not related to today's discussion. No, not directly, but it still applies in theory. There are always those who will abuse what is the best for other individuals, if it profits them personally. Let's be realists, regulations are not the perfect answer, but we need them for the benefit of all future generations. Thank you.

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Remarks by Dr. Robert J. Emry, Department of Paleobiology,
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I'm beginning to wonder why I'm here today. It seems that each one of the items I intended to mention has already been mentioned by almost everyone who has spoken today. But, I will go ahead and briefly mention a couple of items I wanted to discuss. One is what I see as one of the greatest underused resources in vertebrate paleontology, one that has been mentioned by our last speaker and most of the others who have talked today; this is the amateur fossil collector or enthusiast. I think most museums (I am speaking as a museum person) could do a lot more to both educate and use amateurs in their programs, both in fieldwork and in the museums; I know there are many amateurs who would volunteer to work in museums. In the National Museum we have several amateur volunteers who work in our lab regularly, at least one day or more each week. We are essentially only prohibited from using more volunteers than we already do by not having sufficient space and funds for equipment and supplies. There are also several people on the staff of our department who maintain extensive contacts with many of the fossil clubs and amateur organizations along the east coast. A group from my department makes a trip each year through Virginia and North and South Carolina to

visit fossil clubs and fossil fairs. Members of these clubs now expect the museum group, and will bring the best material they have found during the year to show and for identification. Of course they are encouraged to donate the important material to the museum--specimens we would like to have for our collection, if they have sufficient information to make them important scientifically, or we think it is possible to reconstruct this necessary data. Very often we will be given specimens; most of the so-called amateurs are as professional as most of us professionals are in recognizing the value of having these scientifically important materials in permanent collections, where they can be curated and maintained permanently. Alternatively, we might promise to make a cast of a specimen for the donor in exchange for the original, or failing that we will ask to borrow the fossil so that we can make a cast for our collections and then return the original.

A project that I have been involved in just this summer demonstrates the value of amateurs, and has resulted in the first good land mammal fauna from Delaware. Teeth were found by construction workers at a highway by-pass near Dover. Some of these workers have brought their finds to the Smithsonian for identification. They were encouraged to look for more and in turn have encouraged other construction workers at the site. Now many of them

seem to spend much of their spare time looking for fossils. And they have been very generous in donating important specimen to the museum. The result is that we now have the most diverse Miocene land mammal assemblage known anywhere north of Florida along the whole east coast, and the fauna also includes many kinds of marine vertebrates--fish, shark teeth, and so on. And, this would not have been possible without the cooperation of amateurs. To obtain a comparable collection, the museum would have had to have several people at the site continuously during the several months duration of the project. This is the sort of thing that museums could do more of. And it is obvious that many amateurs really enjoy being helpful and contributing, especially when they can see the scientific importance.

A second topic I wanted to mention is education, also already mentioned by previous speakers. It needs to be emphasized that more education and information is needed at all levels, from elementary schools to universities, or less formally from children to adults, including land owners. As mentioned by a private landowner who spoke earlier, landowners need to make themselves more aware of what occurs on their property, what its importance might be scientifically and what its commercial value might be. I can tell you that much has changed already in this regard during the past few decades. I began collecting

White River fossils more than 30 years ago; then, when I would ask for permission to look for fossils on private land, the landowners almost invariably granted permission, but often with such a statement as "sure, you're welcome to go look, but I've lived here for 40 years and I've never seen any fossils here." Chances are that the first wash or outcrop I would walk over would have fossil material all over it. In those days many landowners were not aware of fossils on their own land. If I go to those same places now, I am still usually granted permission, but when I find something the landowner now wants to know what it is worth, or how much I expect to get for it. I have to explain that for my purposes it doesn't have a monetary value; its value to me is its scientific information, and if they want to know its commercial value in dollars they are asking the wrong person. Much needs to be done in education and information sharing, and I think in general we need to stress more the scientific importance of fossils, and the loss of information that can happen if they are improperly collected.

The last item I want to touch on is regulation. It seems that we should be able to come up with reasonable rules to control collecting fossils from public lands, but I don't think it is likely that we will come up with regulations that will suit everybody --there will be some out at both extremes of the bell curve that won't be

happy. But this is always the case when rules and regulations are made. In my opinion, we must have some sort of control over collecting fossils on public land, primarily to ensure that scientifically important specimens remain in the public domain. I think the bill recently introduced by U. S. Senator Max Baucus (most of you probably have a copy of it now) is, in

general, pretty good, but I think some of its provisions need to be modified. One of these (I believe John Pojeta mentioned it this morning) is the chauvanistic idea that fossils should remain in the area where they are found; fossil from Texas, for example, should stay in Texas or those from Wyoming should remain in Wyoming, or even to the extent that people want fossils from their areas to stay in their local county or town museums. I agree with John that this would be very detrimental to the science; if most vertebrate paleontologists had to rely on fossils from the states or counties where they are employed, most of them would not have much to do. But it is also a bad idea from a public education viewpoint. I will use my museum, the National Museum as an example. We probably have fossils from virtually every state, but, in most cases, probably not as much material as those individual states have in their own museums. But the material we have on display from, say Nebraska, just as

an example, is probably seen and enjoyed by an order of magnitude, or perhaps two orders of magnitude, more people in our museum than would see it if it were on display in Nebraska. The National Museum has several million (I believe 5 to 6 million) visitors each year, certainly more than would visit any state museum, and perhaps as many as visit all state museums. Certainly people should support their local museums, and some local fossil material is appropriate there, but also supporting your state and national museums will have a greater benefit for more people.

My second point of disagreement with the proposed legislation is in its prohibition against any commercial collecting on public lands. I would not be in favor of unrestricted collecting, but I don't think we need an ironclad rule against commercial activity. If accessibility is determined by considering the eventual disposition of specimens rather than who collects them, then I can see how permits might be given to commercial collectors on a case by case basis. The deciding consideration should be that material remain in the public domain.

FREE ENTERPRISE
VS.
BUREAUCRACY, SUBSIDY, AND MONOPOLY

Remarks delivered to Northern Plains Governors Conference, Rapid City, South Dakota

25 August 1992

By Peter L. Larson, President: Black Hills Institute of Geological Research, Inc.

217 Main Street/ P. O. Box 643, Hill City, SD 57745

[NOTE: My remarks will concentrate on Commercial fossil collecting but attendees should be aware that amateur fossil collectors also have a vital concern with regulation of fossil collecting. However, no representative for their interests was invited to speak at this conference.]

Thomas Jefferson, collector and purchaser of fossils, once said:
*A wise and frugal government, which shall restrain men from injuring one another, shall leave them otherwise free to regulate their own pursuits of industry and improvement, and **shall not take from the mouth of labor the bread it has earned.** This is the sum of good government.*

Fossils have been collected and sold as objects of beauty and scientific interest for hundreds of years. Virtually every museum in the world has acquired specimens from commercial collectors. These specimens are used for display, research, and education.

The paleontological teaching collections in universities are nearly all purchased specimens. These collections are indispensable in providing the necessary "hands-on experience" to students of the earth sciences. Many fossils, collected by commercial collectors, reside in private collections where they are shared with many people who otherwise would not be able to see and touch fossils.

Through the years, many important scientific discoveries have been made by those people who sell fossils. These scientific discoveries include:

The first Ichthyosaur and Plesiosaur - as well as more than 90% of all Ichthyosaurs ever collected.

The bulk of all crinoids and trilobites ever collected, including countless new species.

Every specimen of *Archaeopteryx*.

Most of the information and more than 98% of all the specimens from the prolific fossil fish deposits of the Green River Formation.

A great many of the dinosaur discoveries and excavations were made by commercial collectors. These include the Como Bluffs Dinosaur Quarry, the Ruth Mason Dinosaur Quarry, "Supersaurus", "Big Al", "SUE", "STAN", *Avaceratops* and the Careless Creek Fauna, and the deposits of the Cedar Creek Anticline - from which Jack Horner has been able to unravel dinosaur nesting habits and formerly unimagined aspects of dinosaur social behavior.

There was a time that amateur, commercial and academic collectors worked together for the advancement of the science and art of Paleontology. As recently as 1987, the National Academy of Sciences recommended that WE continue this cooperation. However, recent events have divided the WE into US vs. THEM. I wish that it were not necessary to make the following comments . . . BUT IT IS!

The organizers of the "Northern Plains Governor's Conference" and proponents of Senate Bill 3107 would have you believe that FREE ENTERPRISE IS EVIL!

THEY would have you believe that - if we make public lands off limits to amateur and commercial collectors - it will decrease the supply of fossils and therefore drive down the prices! . . .Where did these people study economics?

THEY would have you believe that the way to save fossils is to leave them to rot in the field, so that the elements which expose fossils will also be allowed to destroy them!

THEY would have you believe that a Government Bureaucracy can deliver specimens more efficiently and at a lower cost than Private Enterprise. - AND Lest we forget, taxpayer subsidized Museums and Universities also sell fossils! In fact, since 1960 at least 30 dinosaur skeletons have been sold by THEM!

THEY would have you believe that fossils are rare and in short supply -
- But they also tell you that every time someone puts a shovel into the ground it is necessary to pay a paleontologist to tell you if it is OK or not!

THEY would have you believe that it is more important to make lists of fossils as they are exposed and destroyed than to actually save the fossil itself!

THEY would have you believe that THEY are "only interested in the public good" as they take their paychecks - drawn from taxes paid by you - to the bank!

THEY would have you believe that the public is bad and cannot be trusted!

THEY would have you believe that the interest in, and the knowledge of paleontology will increase when THEY put those people who love fossils into prison!

Well, I feel sorry for THEM. You see, the world has changed. The totalitarian systems of Eastern Europe have fallen. The Soviet Union is no more. The ideology of Absolute Government Control has proven to be a miserable failure.

Here in the United States, our Treasury is bankrupt. Who will pay for the implementation of Senate Bill 3107, this proposed BILLION DOLLAR A YEAR BONE-DOGGLE. I personally do not believe the taxpayers of this country will fork out the cash to further restrict OUR freedoms.

Free Enterprise Works. Those who sell fossils provide them economically to museums, scientists, students and the general public. Amateurs provide them free. The 1987 National Academy of Sciences report entitled: *Paleontological Collecting* states that "the science of Paleontology is best served by unimpeded access to fossils and fossil bearing rocks".

Freedom works - and -Government subsidies, huge bureaucracies and police states do not! Let's turn us versus them back into us. The NAS recommendations work! Freedom works!

Remarks by Gregg Bourland, Chairman, Cheyenne River Sioux Tribe

I would like to introduce myself to you first in our proper Lakota way. My name is Wanbli Awanyankapi, which in our Lakota language means Eagles Watch Over Him. I am Minnicoujou-Lakota which is one of seven bands of the Great Sioux Nation. I represent and am the leader of four of those bands which reside on the Cheyenne River Reservation, being the Minnicoujou, Oohenumpa, Itazipco, and Siha sapa. Those four bands and three others comprise the Great Sioux Nation and I am here today to talk about a different set of public lands.

I have to get my notes here. I wrote them on the back of a business card--I am really organized. Basically, in 1851 the U.S. government came to my people, seven different bands, the Great Sioux. They said we want to cut a treaty with you people, a land treaty, and we are going to give you the lump sum total of some 60 million plus acres out here. And if we do so, in exchange we want some protection. We want some protection over a road we are going to build through your land. And we fully admit, and our government the U.S. government, and the President of the U.S. fully admits this is your land.

So, in 1851 we cut them a treaty, we cut them a deal. It was something we had been doing for over thirty years with the government, cutting treaties, but this was a land deal, a land treaty, and in 1868 they came again because we ran into a problem over a Mormon's cow. Our people by that time were starving, so we butchered a Mormon's cow and that started a ruckus. So, here they came again. They said, "Look, we have got to calm everything down. We want to cut a treaty with you. Meet us at Ft. Laramie, Wyoming". And so we met them at Ft. Laramie, Wyoming, and we cut them another land deal and we gave them a slug of land. But, in exchange they gave us (and the whole 1868 treaty they cut with us is a land treaty)--they said forevermore you will never be able to give any of your land away, ever. You will never be able to cede that land unless 3/4 of all adult males agree to this. It sounded like a good deal; it sounded like a democracy, which we were used to enjoying.

A few years later they discovered gold in the Black Hills and they came back again. They said, "hey look, (this is 1876) we would like to have you cede some of your land. So, we are going to go out and take a vote of 3/4 of all your adult males and get some of this land back". The vote failed. They could not get it done. They went back to Washington DC. In 1877 they passed the act that took the land, which reduced the great Sioux Reservation or Nation considerably.

In 1889 they established the Reservation I currently reside on, three million acres strong, encompassing all of two counties--Dewey and Ziebauch, and we have been there ever since. In 1908 they gave quite a bit of that land away under the Homestead Act. We traded alot of that off, we sold it off so to speak. In 1978 the U.S. Supreme Court said they had never seen a more rank and dishonorable dealing as the Act of 1877 in which this country stole from its original inhabitants, the Sioux people, that land. But, sorry we cannot give your land back, we fully admit the whole deal was a bad deal, we fully admit we took the land, we will give you \$100 million instead.

They gave us \$100 million. They stuck it in a trust fund. We said we will tell you where to stick your money and shove it. That money today is over \$320 million and the Sioux Nation, people who today are faced with over 50% unemployment, have never touched one penny of those dollars. Our tribe has been accused of wanting these dinosaurs for commercial gain, for monetary

gain. Now, if it was the money, we've got \$320 million that we refuse to touch, because it is not the money, it is the philosophy.

The treaties and, of course, in 1935 our government was officially established under the Indian Reorganization Act. Franklin D. Roosevelt was a primary person behind that. It established the jurisdiction of our tribe, which gave us the power of self-government, something other nations, such as the U.S. government have enjoyed for years and which we had enjoyed for years until they stuck us on the reservations. So, with the power of self-government came the power to create ordinances and laws and we have enjoyed that ever since. The Cheyenne River Reservation, being self-sufficient and self-sustaining to a degree and being somewhat quasi-sovereign, is very concerned about the taking of fossils from our public lands. Now, we have a unique setup on Indian reservations because our land is held in trust. We have tribal land, in excess of 100 million acres of tribal land, which is publicly owned by all members of the tribe. And we have individual tribal trust land which is held in trust by the U.S. government for individual members.

But our biggest concern is, and has always been, people coming onto Indian land and taking freely from it. Of course, the first bone collectors we encountered were the grave diggers. They came out and they took human remains. It was bad enough that when we buried our people we did so in the finest regalia that we enjoyed in life. We buried them with their finest possessions, only to see these things stolen from the scaffolds. Fine, steal the man's things, but don't steal the man; and that is what happened. For awhile there they got into taking just the heads, the skulls of my people. Some of us know where our families are buried. For example, I have a great great grandmother who only myself and my grandmother know where she is buried. My grandmother said, "Never tell anyone because they will take her head". Crazy Horse, the greatest Lakota leader of our day, was buried in a secret grave and remains so today.

But we are not here talking about that, our original experience with the bone collectors of that day. We are here talking, and I am talking, about the collectors of today. Now, I will have to admit, our reservation has been busy for years and years just trying to survive, but we do have laws on the reservation and if somebody wants to come to the reservation, paleontologists, and look for fossils and collect fossils, the procedure is quite simple. You usually come see the Chairman, I have 350 employees that work for me. I will refer you over to one of them or they will refer you up to me. I will talk to you about it. We will send you down to the land committee where personnel will find out where you want to dig, what you want to do, who you are, and if everything is kosher, so to speak. They will draft a resolution that will go before the tribal council and that resolution will authorize you to do archeological, or in this case I realize a room full of paleontologists, paleontological digs. But, believe me, after the experience of the past year and a half I do have to say, and I would like to conclude with this, I extend an open hand to the scientific community, to the valid museums, and the valid scientists, but I am afraid that open hand will never, ever apply, under my administration, to commercial collectors.

I am afraid we don't have room for that, because I truly believe that these things should be shared by all people. Our tribe is very interested in establishing a museum, maybe one in the Black Hills, so that we can tell our story, the mythology stories, behind the great dinosaurs. And there are a lot of old mythological stories from the Lakota that you might be interested in. But, we would like to tell these stories and we would like to work with the

School of Mines and Technology. You know I heard someone say here today that we can cast them. We have been saying that for a year and a half. We do not want to put the real one on display. All we want to do is to put the cast on display and give the scientific community the original bones. So that invitation stands to the scientific community, to you valid scientists that will look for bones and dinosaurs, fossils. Cheyenne River is a hotbed of them, there is no doubt--we've got the biggest T-Rex in the world and we are going to share that with the entire scientific community. I guarantee that it will never be sold in Japan or China or God knows where they sell those things. Thank you.

Panel Presentation by Tom Conger

It is a pleasure to be here and I am somewhat awed by the resumes being presented both this morning and here on this panel. I am kind of in a minor league, so to speak. But I am going to change the format here a little bit from talking about bones and specimens and talk a little bit about where we are getting them and a little bit about the people.

About 35 years ago I came upon a fellow one day in a pair of khaki shorts with a pith helmet. He had an East Coast accent and for just a short bit I thought it was Ozzie, but I learned it wasn't. This guy was from a very well-known, very well established university whose scientific credentials are probably way beyond the scope of anything I could relate to you today. The problem was he was badly lost. He was under the misconception that everything west of the Mississippi River was the great public domain of the American West and he was fully expecting to encounter some of Mr. Bourland's cousins, and I say that with respect, and some of my cousins--whether or not they intended to take him to the nearest Cottonwood tree or what--I don't know. The fellow was a paleontologist, but had no ability to establish a relationship with those of us that live in the Great American West, which encompasses most of the people here (we have got a few guys from back east so to speak, and I mean no disrespect from where you come from).

The important thing for you amateur collectors, professional collectors, commercial collectors, and I hope I haven't forgotten anybody that is collecting and involving themselves in the art of paleontology, is remember and respect the property rights of those that you are dealing with. Those rights go all the way from my rights and our rights I should say--our ranch is a family held partnership. It has been in existence for something over 100 years. It controls, with both deeded and leased land, something like about 20,000 acres that has a large library of fossils. I don't know all of them.

I have had quite a long relationship with the School of Mines and I've learned alot about what is around and what is out there. And I am not sure they know what all is out there. We run into strange things almost every day that we don't understand what it is. The field of paleontology is very interesting to me personally, and I guess that has fed the relationship with the School of Mines from our aspect.

But those of you involved in the science and whether it is a relationship with me or a relationship with the U.S. Forest Service in the case of the National Grassland, whether it is with the Cheyenne River Sioux people--with Mr. Bourland's tribe, or whether it is with the National Park Service--you want to represent professionally whoever you represent to those people. You want to build honest relationships. You want to tell them who you are, what you are doing, and why you are doing it. You don't want to come off like the guy did with the pith helmet and the shorts. He had six or seven Ph.D's. I am not sure he could speak English--I couldn't tell. But it was obvious to me that I was to be awed by this education--well, I wasn't. And it took a long time for guys like Dr. Jim Martin (he introduced me to Ozzie and I have been scared of him ever since) and a number of other folks to dispel that impression.

So what you folks need to do is work with all of us that are the original custodians, shall we say, of these fossils. We are the stewards or caretakers of land, whether we are in the business of it as a career (working for the government) or in the business of it as ranchers and farmers trying to make a

living off that land. That is a relationship that we have got to nurture and we have got to expand on it.

I like to see the cooperation. I dislike some of the innuendoes that have been made around this conference in respect to people's beliefs about whether or not we should collect commercially here or there or whether we should collect as amateurs here or there. I think that the scientific aspect and the legacy that is involved in a situation with creatures that lived for a couple hundred million years far exceeds our brief time that we have got to examine that.

So with that I would just like to leave you with the thought--build a relationship with the landowner, educate him, let him know what you are doing, get him interested in it. He might even, as some of the paleontologists, help. He might even help you get something dug out when it weighs 500 pounds and occasionally they do weigh at least that much. Thank you.

Panel Presentation, "Fossils for the Future"

The title for this conference, "Fossils for the Future", is very appropriate. My personal concern as a paleontologist, a museum curator, and as an American citizen, is the preservation and care of irreplaceable, nonrenewable vertebrate fossils. This concern is immediately relevant to the discussion of the legal protection afforded vertebrate fossils on public land, and the attempts of commercial interests to capitalize on these national resources by illegal collecting.

Public lands are preserves. Fossils are held in trust on public lands until new techniques for analysis and dating come along. The current system of collecting vertebrate fossils on federal land under federal permit has developed from legislation enacted over the past 90 years. This has been recently reinforced by FLPMA and the Code of Federal Regulations. The way the system works, briefly: (1) collecting is legal only under permit, and (2) although vertebrate fossils may be housed in public museums, they remain in the custody of the federal government. The legal collecting of vertebrates on federal land by permit, and their subsequent disposition, has prompted complex rationalizations by those who collect without permit and those who seek to avoid notice by museums, universities, and public land managers.

Collecting by permit is a system that works. It has made universities and museums responsible for the care and inventory of fossils from federal lands and fossils in their respective collections. These institutions have year-round programs using staff, students, volunteers, and avocational collectors to inventory public lands, to record provenience and stratigraphic associations, and to maintain collected data. The discovery, study, and description of species new to science is an integral and ongoing process for institutions and associated support groups.

Contributors to a National Academy of Sciences document stated that vertebrate fossils were "renewable resources." This is not the consensus of vertebrate paleontologists, as evidenced by statements of the Society of Vertebrate Paleontology, a preservation organization with 1500 members. Vertebrate fossils can not be harvested like plants or even minerals because vertebrate fossils are unique and nonrenewable. Vertebrate fossils are the remains of a finite number of animals, and of these species, only a tiny fraction were preserved as fossils in the first place. Anyone who defines vertebrate fossils as "renewable" and says they can be found in the next outcrop down the road has never dealt with the reality of collecting vertebrate fossils in the field, and fails to appreciate the critical role of locality and stratigraphy in the context of a fossil discovery. The fact that prices of \$50,000 to \$500,000 are placed on vertebrate fossils suggests that both the seller and the buyer hardly consider these specimens to be "renewable."

In southern Nevada and California, not only fossil localities but entire exposed formations are disappearing at an alarming rate due to urbanization. Our fossil localities are becoming street addresses, and no one is willing to dig under a \$300,000 house. The increasing pressures of urbanization and development of private land throughout the nation make protection of fossil resources on federal land even more vital. Vertebrate fossils are truly nonrenewable resources that provide us with a national record of events that span more than 400 million years.

The different motives of institutions and commercial collectors have a direct affect on the continuing preservation of vertebrate fossils. There is a vast difference between the motive of preservation on one hand and the motive of profit on the other. With preservation comes accurate stratigraphic and locality data, and specimens that are housed for future generations. In contrast, with profit comes failure to acknowledge land status, avoidance of permits, and avoidance of museums and the interested public. There is no available inventory of private collections, there is no available catalog of fossils in private collections. There is no list of fossils sold abroad. Fossils collected illegally from federal land and sold commercially are not saved--they and their data are lost.

The profit motive places dollar values--very high dollar values--on vertebrate fossils. But what are we actually losing? Not just costly curiosities. With commercial collecting on public lands, we are losing the record of life. We are losing locality data, we are losing stratigraphic data, and we are losing facts about populations of vertebrates that lived millions of years ago. We are losing a 300 million year North

American record that individuals, families, institutions, and the BLM, the NPS and the USGS are trying desperately to maintain in the public domain. We are losing information about the history and habitats of our nation, information about interaction and relationships between species. We are losing information about structural events including earthquakes and mountain building, information about major climatic change including Ice Ages and deluges of volcanic ash.

We are losing clues to the causes of extinction, a condition on our crowded planet that we must not ignore.

The current system of federal permitting and regulations works and works well. These regulations will be clarified by the Baucus bill. The federal permit system places the responsibility for preservation with an institution where fossils and their data will remain as part of our public heritage and be available for future generations to appreciate. I, for one, strongly oppose the commercial exploitation of our national heritage for the profit of a few in the private sector.

Robert E. Reynolds
San Bernardino County Museum
2024 Orange Tree Lane
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August 21, 1992

PANEL ON CURRENT TOPICS
Dr. Michael E. Nelson
Summary

I would like to thank all of the participants for contributing to this panel session on Current Topics. These excellent presentations will serve as discussion springboards for tomorrow's Issue Sections.

The major themes of today's session are as follows:

1. The education of our youth is extremely important.
2. Amateur collectors have a tremendous amount of enthusiasm, provide a valuable resource to institutional paleontologists, and have an obligation to correctly document their collecting activities.
3. Most amateur collectors are professionals and are willing to work in tandem with museums and Universities.
4. There should be better collaborative efforts between "professionals", amateurs, and commercial collectors.
5. Many paleontological opportunities are available on the various Native American reservations, and many residents are willing to work with institutional, but not commercial, collectors.
6. We must respect the rights of private landowners. Field paleontologists must be honest with the landowners so that excellent relationships may be constructed.
7. Vertebrate fossils are unique, nonrenewable resources, and many specimens are being lost through the actions of commercial collectors

Although the viewpoints presented today are diverse, all participants are interested in preserving vertebrate fossils.

I would again like to thank the participants and release them from their duties with a hearty round of applause.

Name: Michael Triebold

Affiliation: Triebold Paleontology

PROTEST

I protest the publishing of proceedings on the basis that a meaningful discussion of the issues did not take place, due to the cancellation of the conference. No opportunity existed to seriously challenge any of the speakers, whose views were in some cases blatantly aggressive, arrogant, and slanderous towards commercial fossil collectors. Publishing the contents of the speaker's presentations MUST NOT be considered a consensus. Doing so will confirm that the meeting's purpose was simply to put a respectable facade on an already formulated agenda, making the entire process a sham, and a waste of taxpayer's money.

Re: Public Awareness & Education. Hugh Genoways. His presentation concentrated on blaming the "poaching" of fossils in parks on commercial collectors. (Interestingly, especially heavy "poaching" took place near tourist rest areas.) If they spent as much energy trying to find out who is "poaching" as they spent documenting holes in the ground, I suspect they would come to a different conclusion.

Re: Economic Development. Charles E. Clay. An interesting presentation, but hardly relevant due to the very special nature of the Hot Springs site. It totally avoided discussion of direct fossil sales of vertebrates found at isolated localities.

Re: Senate bill S. 3107. Pat Leiggi. The "facilitator" did not allow any questions after Pat Leiggi's presentation and endorsement of the bill, even though dozens of hands went up.

1. The bill would create a new and unnecessary bureaucracy that we can ill afford.
2. The bill pretends to accomodate commercial collectors, but it would destroy our customer base. The bill would prohibit "...direct or indirect affiliation with a commercial venture that engages in the collection of fossils..."(Section 4(7)(B) by what it refers to as "suitable institutions" .
3. It allows commercial collectors to contract with those "suitable institutions" for excavation. Commercial collectors are honest, hardworking folks who have taken tremendous risks and invested thousands of dollars in equipment and facilities. I doubt they'll rush to become field hands for museums.
4. The bill classifies all vertebrate fossils as "scientifically significant". (Section 4(3). This broad, sweeping definition is unrealistic. Even certain dinosaurs and marine reptiles are described in the scientific literature as "common" and "abundant".
5. The sponsors of the bill blame "poaching" of fossils on commercial collectors. Do you outlaw deer hunting because of poachers? Do you close the National Parks and allow only rangers in because a few people litter? Of course not! This bill represents a simplistic (and unfortunately completely ineffective) solution to a complex issue. It would contribute to the impoverishment of the nation, benefitting the taxpayer-supported government scientists at the expense of tax-paying-job-creating-wealth-generating private enterprise. Under S. 3107, we would have a good system for watching the fossils crumble to dust.

Name: Michael Triebold

Affiliation: Triebold Paleontology

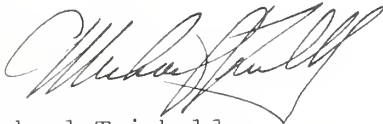
Re: Conservation & Preservation. Jason Lillegraven. This presentation was yet another offensive, vicious attack. It had little to do with the title, but instead was filled with negative and biased comments about commercial collectors. He even had the nerve to list our motives. He is not qualified to do so. His participation as a speaker did more to set back the possibility of discussion than any other presentation.

Re: Amateur Collectors. Wade Winters. This "amateur collector", who applauded S. 3107 doesn't even belong to any amateur collecting organizations. How dare the organizers of the conference shun the leaders and thousands of members of the numerous amateur groups!

Clearly I am angered that the organizers of the conference did not heed Governor George Mickelson's urging "...to ensure all interests were represented on the agenda so we could have a balanced and informed discussion of the issues at hand."

RECOMMENDATIONS: Allow commercial collecting on public land. It should be Permitted, with fees and regulations, but allowed and encouraged. Senate bill S. 3107 has it all upside down. Permitted collecting on public lands would bring to light far more specimens than any other system, and it would cost taxpayers virtually nothing. (When was the last time a government program was more efficient than private enterprise?) All parties must recognize and accept the fact that vertebrate fossils are both a scientific and economic resource, and the needs of both interests can be accomodated. This is the only way to truly protect the fossils. I have many ideas on how legitimate commercial collecting of vertebrate fossils on public land can be a significant positive for the scientific community, and I am willing to enter into a forthright discussion of those ideas with anyone willing to stop the name-calling and finger-pointing long enough to listen. This is an invitation to discuss and formulate long-term workable solutions for the good of science, for the good of commercial collectors, and for the good of the nation without the destruction of careers and burgeoning bureaucracy which would be imposed by S. 3107.

Yours sincerely,



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OVERVIEW. Keith Ferrell and John Pojeta gave excellent papers. I felt that some of the presentations were confrontational and only served to antagonize those with other points of view. It seemed as if many people were not there to work out a compromise but to see that only their personal concept prevailed. There is certainly something fair and acceptable and perhaps something unwise and unjust in all the diverse opinions. Only with open minds and a willingness to work together will these issues ever be solved. On the whole the program was much better than the first draft, as it did demonstrate an effort to hear all sides. Many amateurs feel that the government is against them and is trying to close them out. Relationships between the amateur community and the Buffalo Gap National Grasslands have been excellent. I see no reason why other groups can't solve their problems in a friendly manner.

I (2D) The amateur collector is often given a bad rap through mistaken conclusions on the part of government officials. The words amateur and vandal are not synonyms. A good example of this is the slide of a turtle shown at the conference. It was suggested that an amateur had dug the turtle out and left it there for nature to destroy. No amateur would ever leave that turtle out in the open. That wasn't a bad turtle. If an amateur found it exposed he would carefully collect it, take it home, spend many hours preparing it, then call in all his friends and neighbors to admire it. If he didn't want the turtle he would cover it up, mark the spot, and report the find to someone who might want it. Amateurs do have a code of ethics and they follow it. The turtle was clearly the work of someone who did not know or care about fossils. Amateurs care! Amateur means love, not destruction. I hope the decision to make the public confuse the words vandal and amateur was not deliberate.

I (3A) Public education about fossils is important, partly because if people do not know or care about fossils they will not want their tax money to go for funding government paleontological museums or institutional paleontologists.

Amateurs play a big part in fossil education. They take their collections to schools, let the children handle the fossils and learn about them, they give small specimens to the children, and leave books and periodicals, and often collections for the school library or lab. They do all this without charge. Many adults only hear about fossils when someone they know is an amateur collector and shows off his collection. There are probably over 100,000 amateur fossil collectors. They are the free eyes and hands for institutions with not enough funds or personnel. If they are cut off from their interests it will be a major blow to paleontology.

Name: June Zeitner

Affiliation: S. Dak. Paleo Task Force

Amateurs have also made contributions to fossil literature. Excellent books and magazine articles have been written by amateurs and widely circulated because they are written so that the general public can understand them. Examples are Fossils For Amateurs by Russell Mac Fall and Jay Wollin and Keys to Identify Pennsylvanian Fossil Plants by the Earth Science Club of Northern Illinois.

II (1D1) There are over 60 amateur paleontological societies in the United States. These people study fossils, prepare fossils, and exhibit fossils because of a deep interest. Among other things they are volunteers for museums and museum digs. They donate fossils and sometimes entire collections to museums. They give generous scholarships to institutions which teach geology. They influence their friends and relatives to have interest in and respect for fossils. The good work of these societies is not supported by tax money. Any legislation which would discourage these societies so that they quit will be paleontology's loss.

The point is made that some of these amateur collectors buy fossils to add to their collection, that somehow purchased fossils are lost to science forever. The opposite is nearer the truth. If a person knows enough about a fossil and the needs of adding a meaningful specimen to his collection, to purchase it with hard earned money, he is not going to harm it or hide it. He is going to learn all he can about it, display it, write about it, talk about it, and probably in the end leave it to a museum.

II (1E) Communities interested in the possible economic development of fossil resources should study the Mammoth Site of Hot Springs.

Small communities should realize that they will probably not make a lot of money with a local museum, but they will serve their community and enhance the reputation of their town. Community museums are very important to school children. Not every child has an opportunity to go to the Smithsonian or another large museum.

III (1A) The public is better served if significant specimens are donated to museums, however many times a fossil turns out to be exceptional only because hundreds of hours of careful preparation have made it so. In this case if the museum is able to reimburse the person for the work, not the fossil, it leads to better feelings and perhaps more good fossils.

One reason that some amateurs do not donate more fossils to museums is that they have the impressions that museums have thousands of drawers full of fossils which are never touched. There are mistaken attitudes on all sides and these need to be frankly addressed.

Name: Jennifer Reynolds

Affiliation: San Bernardino County Museum
(Public Information Office)

I. PUBLIC AWARENESS AND EDUCATION

Public understanding of the importance of vertebrate fossils is vital to assuring their immediate and future protection. That awareness levels can be raised in the public sector is clear: we have examples of endangered species (at least, the glamorous ones) that have led to widespread acceptance of restrictions regarding their survival: ivory, dolphin-free tuna, tiger-skin rugs, for example. To get information to the public, we need to educate the media, starting with basics (eg. that paleontology and archaeology are different disciplines). Before we can discuss, with a general audience, the protection of vertebrate paleontologic resources, the audience must understand that we are talking about fossils of animals with backbones, not clams, not petrified wood, not mineral and rock specimens. It would be helpful if all involved in this endeavor--amateurs, professionals, educators, spokespeople, scientists, and commercial collectors--would desist from clouding the important issues of vertebrate fossil preservation on public lands. It is a challenge to communicate without jargon. It is a disservice to the resources to spread misinformation and false analogies. It is unfair to use "the public" as an excuse in the discussion of some of these issues. The public is not dumb. To appreciate and understand vertebrate fossils, it is NOT necessary to own one, any more than it is necessary to own a masterpiece of fine art in able to appreciate it. The public can understand that public land contains public resources. If every person and every group concerned with the legal collection of vertebrate fossils can refrain from deliberate misrepresentation of the current situation, meaningful discussion might result in actual consensus!

It would be extremely helpful if all regulatory and planning agencies, at all levels of government, carried out their respective responsibilities for the protection of vertebrate fossils on public lands under the same (or equivalent) sets of legislation, regulations, and guidelines. I personally believe SB 3107, in consolidating and clarifying existing legislation, would be a good first step toward this goal. The Governors Conference was a good step toward various agencies getting together to review and compare their various guidelines and policies. If all the involved agencies that regulate public land on a federal level can maintain communication (formally or through a less formal network) and eventually come up with workable standards, such standards will have a greater opportunity of being applied at a state level, and eventually at local planning levels.

If the public, private, academic, amateur, profit, and nonprofit sectors can see that protective regulations and policies are uniformly applied, there is a much greater likelihood that all sectors will cooperate in ensuring that these resources receive the protection they deserve.

It is very important that amateurs and avocational vertebrate fossil collectors be involved in all stages of the educational process needed to assure that the public understands and appreciates the role of vertebrate fossils in the heritage of our nation and the history of the earth. Organized groups, from "hobby" clubs to societies that encompass both professional and amateur paleontologists, are a ready-made network to educate and inform the general public, through newsletters, shows, school presentations, bulletins, lectures and informal talks, and local media publicity. Again, the importance of sharing correct and accurate information is critical to public opinion and to cooperation with protective measures. Clearly, institutions such as museums can play a major role in forming joint ventures with amateur organizations as well as encouraging individuals to work within a volunteer setting that provides institutional access to collections and collecting opportunities.

Name: _____

Affiliation: SD STATE HISTORICAL SOCIETY

II. ECONOMIC DEVELOPMENT

Careful planning for the role of economic development can provide increased financial resources for the entire paleontological community. Increased tourism and heritage travel can bolster local and state economies, as is well demonstrated in sites such as the Mammoth Site at Custer, SD. State legislatures and local economic development groups need to be given specific instances such as this, showing how public and private interpretive projects attract visitors and dollars - as they educate.

Many rural communities in the Northern Plains - where fossil sites are more common - can develop projects that can contribute to public understanding and education, as they strengthen local economies. There is no eminent danger that such exhibits will become too numerous or common. Indeed, the presence of a number of sites in an area can serve as a more powerful magnet to attract visitors.

It does not follow that increased emphasis on economic development will result in increased unethical or destructive practices by collectors. Rather, an increased awareness of the economic potential of interpretive and educational projects will result in an increased concern for responsible practices in collecting. It will sharpen the interest of public land managers and private landowners alike and will provide new opportunities for service by collectors over a wide range of interests.

Public access is an important key to securing financial support not now available for the work of professional and amateur paleontologists alike. The financing of museums, exhibits, educational and recreational projects can be found in developing projects that enable the general public to have access, to see first-hand, to learn and understand. They will become advocates themselves for the conservation and preservation of these important resources.

It is when the interests of groups coincide that cooperation becomes possible: everyone interested must gain something.

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FOSSILS FOR THE FUTURE

I. Public Awareness and Education

A. Interpretation Opportunities and Challenges

1. Utilize the existing PR programs and educational outlets of the agencies, e.g., BLM, NPS, & USDA, FS.
2. The challenges should be minimal because this course is currently visible to the agencies.
3. Focus on Tourist & Travel agencies to correct bad information.
4. Utilize amateur and hobby organizations - very important.

B. Partnership Opportunities

1. Interagency

- a. Cooperations already on line, but they need direction and focus on the illegal fossil collecting issue.
- b. Regard illegal fossil collecting the same as poaching, etc.

2. Federal/State

- a. Need cooperation between law enforcement agencies, including State Wildlife Resources.
- b. Need to share P.R. and educational resources

3. Public/Private

- a. Cooperation between schools, amateurs, and hobbyists.
- b. News media should help identify vertebrate and many other fossils as non-renewable resources

4. Academic/Amateur

- a. This relationship must be cultivated.
- b. It is imperative that amateurs be locked in with professional paleontologists and separated from the commercial collectors.
- c. Commercial collectors have tried to include amateurs along with hobbyists and rockhounds to create a larger voice.
- d. Amateurs may be defined as those who collect with the intention of using fossils for their educational and scientific value.
- e. Many rockhounds (hobby collectors) may be regarded as amateurs.
- f. There are an estimated 173,000 hobby collectors of minerals, rocks, and fossils.

5. Profit and non-profit

- a. Issues constitute as large an impact on amateurs as on professional paleontologists
- b. When fossils are collected as a hobby from Public Lands and then sold, it is a violation of the law.
- c. In theory hobbyists and amateurs do not collect for a profit motive, the most important difference with commercial collectors.
- d. All commercial collectors are not in violation of the law.
- e. Self policing will not work.

C. Public Education

1. Public Participation

a. Outreach programs

- 1) should be coordinated through educational institutions and museums with professionals getting involved rather than maintaining the usual aloofness.
- 2) Include scouts, schools, and clubs
- 3) land managers have a large role here.
- 4) Organized hobby collectors conduct classes.

b. Field opportunities

- 1) Were investigated by the Utah BLM at one time to create collecting areas for common types of fossils.
- 2) Designated collecting areas may take pressure off sensitive ones.

c. Definitions

- 1) Professional Paleontologist - studies fossils, publishes research, and is usually employed as teacher or museum staffer.
- 2) Amateur Paleontologist - knows scientific value of fossils, may or may not publish, and is usually allied with professional paleontologists; but does not study fossils as a vocation
- 3) Rock hound is a hobby collector - for the fun of it, but often may be classified as an amateur.
- 4) Fossil Dealer - buys and sells fossils, or trades for profit.
- 5) Commercial Collector - collect and sell to public or wholesale specimens to Fossil Dealers. Some are legitimate, but many are suspect of illegal activities.

2. Public Support

a. Volunteerism in an Institutional setting

1. already on line, but there is a need to coordinate, one institution or group with another.
2. Amateur Paleontologist groups recently organized across the state of Utah - ask Dave Gillette - put them to work!
3. Institutional volunteers in paleontology may be among our best shots at educating and separating the hobbyists (rockhounds) from the commercial collector stigma.
4. Hobby collectors are the numerically largest group and as such, a very important resource to the professional collectors.
5. Needs financial support from the institutions and agencies

Terry Schaefer
Pioneer Trails Museum
Bowman ND

Public Land Management

Access to paleontological non renewable resources on public lands should be provided to professional and amateur paleontologists only for scientific purposes. A strict guideline and penalties for violations should apply. To complete the scientific data, all identifiable fossils in an area must be documented. Documentation shall include: where fossils are found stratigraphically to help determine identity & age; where found to give landowner due credit; location of fossils pinpointed to assure future study and research; and where fossils are now located for research purposes. The documentation of the fossils is also important: what is found, when it was found, who found the specimen, where are they now, All in aiding the world of finding out the why. Public lands should be utilized to preserve our historical and scientifically important resources. Supply and demand should not have any bearing on the decision making process of paleontological resources.

thank you Terry Schaefer

Public Awareness and Education

At the conference a few statements were made a few times that if "we" are not able to collect fossils, they will quickly erode away. To complete the whole picture of years ago, all data must be in place, eroded or not and be accurately documented. I personally have come across fossils that were in good and bad shape. I also have been able to identify and learn about some of the good and bad fossils. I believe that all agencies, institutions, and individuals must educate and be educated to preserve the natural history of our world. The education learned is not so much for us but our future generations to come. The educating process is never ending; landowners, both public & private to preserve, not destroy our natural history; institutions to continually strive for the answers and logically interpret the data; individuals to learn and teach and advance to a higher knowledge of the world's natural history.

Thank you
Terry Schaefer

I. PUBLIC AWARENESS AND EDUCATION

Education to promote public understanding and awareness of the importance of fossil resources should be an important aspect of federal and state fossil resource management programs. Federal and state government resource management agencies, universities, public schools, museums, and amateur paleontological societies should work together to most effectively accomplish this goal. These public awareness programs should be coordinated at the state level by state government fossil resource management agencies, such as state geological surveys, that have paleontological expertise. Activities should include formal classes, museum activities for adults and children, public lectures and workshops, outreach programs, field trips, and public participation in scientific excavations.

II. ECONOMIC DEVELOPMENT

The public's fascination with prehistoric life, particularly dinosaurs, is prompting some communities to build museums to exhibit fossils to attract tourists. This may provide some economic development for some communities in depressed areas of the western states. If done properly, these exhibits may also provide a mechanism to educate the public about the importance of our fossil resources. Development of in situ fossil exhibits, similar to the Hot Springs mammoth site, should be encouraged for economic and educational purposes.

The buying and selling of fossils, particularly vertebrate fossils, should be discouraged because it creates a commercial market for scientifically important objects. Often the scientific information is lost when fossils are marketed. Fossils should be considered part of our natural heritage and scientifically important fossils should remain in the public domain.

III. PRIVATE LANDOWNER RIGHTS

Private landowners should have the right to determine what is to be done with fossils found on their property. Fossil resource managers should provide them with information about their options but encourage them to deposit significant fossils in public institutions so that the specimens remain in the public domain. State governments should set up contingency funds for acquisition of fossils found on private property. Government fossil resource managers should provide landowners attractive programs for preserving important fossil sites, such as North Dakota's Natural Areas Registry Program.

Name: John W. Hoganson

Affiliation: North Dakota Geological Survey

IV. PUBLIC LAND MANAGEMENT

The federal government and each state should have well thought-out, comprehensive fossil resource management programs. These programs should be administered by qualified paleontologists affiliated with an appropriate agency, such as federal and state geological surveys. State and federal fossil resource managers should work together to effectively manage fossil resources on public lands. Formal agreements between state and federal fossil resource managers to cooperatively manage and protect fossil resources, such as the one between the North Dakota Geological Survey and U. S. Forest Service--Custer National Forest, should be established.

A comprehensive fossil resource protection policy for federally administered public lands is desperately needed. Senate Bill 3107 would provide the necessary protection for vertebrate fossil resources and still allow fossil collecting by professional and amateur paleontologist.

V. CONSERVATION AND PRESERVATION

Preservation of important fossil specimens and sites for future generations should be viewed as an obligation by fossil resource managers. Preservation of fossil resources should be an integral part of each state's fossil resource management program. Interagency cooperation at the state level is an effective way of preserving fossil sites, such as North Dakota's Natural Areas Registry Program. Cooperation between state and federal fossil resource managers to protect significant fossil sites on federally administered lands is needed.

The loss of fossil specimens and particularly scientific documentation for specimens has become a major problem because of increased interest in fossil collecting by hobbyists and commercial collectors. To encourage preservation of fossil specimens and scientific information about the specimens, each state should have a state sponsored fossil repository, preferably at a state supported museum. This state fossil collection should be administered by the state's fossil resource managing agency. Acquisition of fossils for that collection, for scientific study and public display, should be an important part of the state's fossil resource management program. Hobbyist collectors should be encouraged to participate in development and maintenance of the collection. Classes for hobbyist collectors to teach proper extraction and documentation techniques should be provided at the state's fossil repository.

Fossil resources should be included in each state's overall resource management plans. In North Dakota, for example, oil and gas lease tracts are evaluated for potential impact on paleontological resources before they are listed. State fossil resource management agencies should maintain an inventory of documented fossil sites within the state to assist in identifying paleontologically sensitive areas.

Name: Dean A. Pearson

Affiliation: Curator, Pioneer Trails Museum

PUBLIC AWARENESS AND EDUCATION

We have a good working relationship in the state of North Dakota between the Pioneer Trails Museum, the North Dakota Geological Survey, and the institutions of higher education. This co-operation exists for the sharing of reference materials both as written information and specimens, field opportunities, and academic programs. Assistance is always provided when asked for any project. The Geological Survey has allowed us to operate under their permit and to collect sites with their guidance on federal and state lands. Both the BLM and USFS have worked with us on these projects and we have a good working relationship. Everyone who is involved shares the information and all specimens are properly curated and stored. This is a relationship that could be used as an example of what is possible when people work together.

ECONOMIC DEVELOPMENT

Dinosaurs are a big draw for tourism at the moment and specimens placed on display can and should be utilized for tourist attraction. However, economic development should not be realized from the sale of fossil vertebrate materials. Communities should work with collectors and establish displays in their areas with the guidance of trained paleontologists. Scientific data should also be gathered and presented to a research institution or repository for future reference. All vertebrate fossil material should be considered as significant scientific material because they all are a non-renewable natural resource and once depleted there will be no more. No person, organization, or institution should be allowed to profit from the sale of the original fossil vertebrate materials.

PRIVATE LANDOWNER RIGHTS

The decision to allow collecting and dispensing of fossil materials on private lands should rest in the hands of the landowner. However, all options available for the fossils collected should be made accessible to the landowner prior to or during the collections taking place. Both sides of the "Sale v.s. No Sale" issue should be presented at this time.

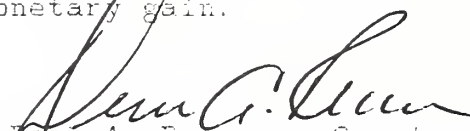
PUBLIC LAND MANAGEMENT

We are in need of paleontological protection legislation for public lands. The current Antiquities Act is not adequate. I endorse Senate Bill 3107, as it is written, as the most effective way of managing our paleontological resources on these lands. This bill will expand the opportunities of amateur collectors in enabling them to get permits assigned to them, possible curation of fossils into private collections if they are made available to the public, and assistance from research institutions and professionals. Museums may also be able to act as a repository for fossils collected on public lands and be able to operate under their own permits for collecting. No individual, group, or institution should be allowed to collect on federal lands for a profit. These lands belong to all taxpayers and the ability to profit from them should not be a benefit to a few.

CONSERVATION AND PRESERVATION

Most untrained collectors and those who are collecting only for monetary gain do not gather or maintain accurate scientific data when collecting specimens. Once a specimen is removed from the place it was eroding out from and no data is collected, information on the specimen, associated specimens, and the environment at the time of deposition are lost forever. Very rarely can an individual place a removed specimen back into the same stratigraphic context from which it came at a later date. A fallacy often heard is that if the specimen is not collected the weather will cause it to fall apart and it will be lost. True, the weather will destroy a fossil if left unprotected but, it is better to find a few identifiable fragments in place to signify what was there than not to find anything at all. Most who are collecting for profit are interested in the large, aesthetically correct, better preserved fossils. Consequently over a period of years systematic collections of these items will deplete an area of an entire fauna until new erosion exposes additional specimens if they are there. A study of species diversity through this area after it has been collected will be a biased study if no knowledge of the prior collections are made public. This is the reason scientific data collected at the time of specimen removal is so important. Most states have no requirement to deposit or collect this data. A designated repository for this data whether voluntary or mandatory should be established and all collectors should furnish collection data as a gesture for the preservation of science.

I feel it is imperative we preserve these resources before they fall to destruction and disappearance like the worlds rain forests. Commercialization of these natural resources should stop. There are more important uses for them than monetary gain.


Dean A. Pearson, Curator
Paleontology Department
Pioneer Trails Museum
Bowman, North Dakota

NORTHERN PLAINS GOVERNOR'S CONFERENCE
COMMENTS ON ECONOMIC DEVELOPMENT
DAN GRENARD - BLM PROJECT MANAGER
for the Garden Park Fossil Area
September 23, 1992

I. LONG-TERM OPPORTUNITIES

A. Tourism and Heritage Travel

Surveys conducted in Colorado such as the Longwoods report demonstrate strong public interest in museums and tourism focused on natural and historical features. A survey conducted along the Arkansas River showed strong demand for information on natural and historical features. These surveys also show this interest is increasing.

B. Interpretation/Recreation on Public Lands

Two major planning efforts are in progress in our region. A master plan for interpretation of the Garden Park Fossil Area is being prepared in Canon City and a master plan is being prepared for the Purgatory Dinosaur Trackway. It is probable both plans, if implemented, will provide the public with excellent opportunities to learn about paleontologic values on public lands.

C. Responsible Marketing of Limited Resources

The master plan being developed for the Garden Park Fossil Area contains goals which call for interpretation, education, and economic development. Balancing these development goals are preservation goals that call for care and preservation of the paleontological resources in the Garden Park Fossil Area. Obtaining this balance is a delicate but achievable goal.

Based on our public educational programs to date, we have found that an informed and knowledgeable public will help take proper care of these resources.

D. Amateur Paleontologic Societies

The Garden Park Paleontological Society has goals and objectives listed in their by-laws which promote: public education, resource care, and economic development. They work in close cooperation with the Bureau of Land Management, the Denver Museum of Natural History, local governmental entities, and business interests. They have demonstrated that with simultaneous careful planning, great economic benefits can be provided to a community with responsible resource management and strong user ethics.

E. Rural Economic Development potential.

While conducting an economic analysis of the proposed Garden Park Visitor's Center, an economist with the BLM State Office described the

economic development that would occur as a result of the visitor center. The analysis showed that the visitor center would generate over 600 new jobs in the private sector and provide about 11 million dollars of income to the area annually.

Name: ~~Dor~~ Dorothy M. Boyce

Affiliation: R AAPS

IV. Public Land Management 1) C) Senate Bill S3107

It seems to me that there is only one issue at this conference and that is: "Can a small elite group of paleontologist along with their various government agencies have the power to create a monopoly of the fossils in this country?"

This bill would give this small group power to use tax payer's money for anything they choose to call a fossil regardless of whether the taxpayer or voters like what the annoited group decides is in our best interest.

I resent the attitude of this small elite group for having disregarded all the contributions from the general public to their museums and the tax monies to maintain their museums and salaries. I would like to know what this elite group proposes to do with all the specimens they already have locked away in their basements; also, what they propose to do with the uncollected fossils. These questions were asked at the conference but not answered. A fossil not collected is a fossil lost to erosion and the public. There is an alternative in the proposal for Paleontological Collecting published in 1987. This proposal was rejected by our elite group as it contained some compromise of their position. This group, with the help of Senate Bill 3107, will eliminate any more discussion - give them the power they want through a monopoly - regardless of the cost of maintaining and enforcing this bill. This whole conference gives me the feeling that ther is a lot of professional jealousy out there and our elite group would like legislation and government monies to help protect their exalted positions.

This is not good legislation for me or my country or the fossils.

Name: Dr. R.A. Boyce M.D. FACS

Affiliation: R J B Rock Shop

III. 1):

Private landowners should continue to control their own property as quarranteed by the U.S. Constitution. Whatever is found on their property should be theirs to do with as they see fit.

IV. 1) C):

The public is well aware of what is being foisted on them by a small group of individuals trying to command and control the collection of fossils from public lands.

They lie, when people say, there is a shortage of fossils when recently many different types of specimens have been found. Most of them have been found by amatuer and commercial collectors. Examples: Mammoth Site in Hot Springs, SD by the Hot Springs Rock Club; Jack Horner's Dinosaur egg site by Marion Brandvold, rock shop owner in Bynum, MT; T. rex by Peter Larson, a commercial collector.

The South Dakota Badlands have been producing fossils at the same volume for the past 150 years. After every rain storm a new crop becomes visible proving there is no shortage

Three years was spent by the NAS to develop a plan of management and should have been implemented two years ago but was stymied by this small group that is trying to create a bureaucracy to command and control the collection of fossils on public land through the passage of Senate Bill S3107. The cost of surveillance and monitoring 400 million acres of public land; 99.9% of fossils will be left to weather away to enrich the soil. A fossil collected is a fossil preserved to enrich someone's life.

Name: Sally V. Shelton

Affiliation: Texas Memorial Museum, U. of Texas

TOPIC: CONSERVATION AND PRESERVATION

The term "conservation" has several meanings which are not necessarily contradictory; in the context of vertebrate fossil resources on public lands, it can refer to both the protection of the resources in situ and the long-term care provided to specimens in collections storage (assuming that an exhibit is a specialized, highly visible form of storage). Both aspects of the term "conservation" require assessment of the resource and its value, short- and long-term written plans for management priorities, and effective education of both those responsible for care of the resource and those for whom the resource is being preserved and documented.

It has been said that a museum collection is a set of labels backed up by specimens. While this is a humorous exaggeration, it highlights the very critical role of information and documentation. Without these, a specimen simply has no scientific value and is lost to the field. A professional making a collection for a public-trust institution is obliged to collect as much information as possible before the fossil ever leaves the ground. Information that may not seem important now may become a vital key in future research. The information associated with a specimen must be protected as thoroughly as the specimen itself, for it gives the specimen its scientific standing.

Over the past century, analytical techniques have increasingly replaced subjective observation as a tool for classifying and analyzing the information contained in fossils. This mirrors the development of advanced techniques in other natural history collections. Species identification in Recent collections is no longer based strictly on multivariate morphometrics; chromosomal identification defines the field. The effect of high concentrations of DDT was best shown in the painstaking analysis of birds'-egg collections which were made for other reasons altogether. Predicting the next advance in techniques is impossible; if the past twenty years are any indication, there is more not known about fossil vertebrates than known. But a poor choice of techniques in the field of laboratory, or failure to document those techniques or materials, may compromise a specimen's usefulness in the future.

This is why "conservation" in the second definition is a parsimonious approach. All materials and methods used, from the simplest adhesive to the most complex imaging, are coming under increased scrutiny. Add any contaminant, and the fossil's potential for yielding accurate biological molecule traces fades to black. Keep no records, and the source of damage or breakdown may never be known. Analyze the specimen out of its taphonomic and stratigraphic context, and leave the realm of good science altogether. In the past, some paleontologists have been fairly charged with presenting hypotheses masquerading as theories. Only the specimens and their associated documentation can show whether a grand idea has any basis in fact. It is this vital link that conservation--in both senses--seeks to preserve.

Conservation, like education, is a process, not a state of grace. There is no point, either in the field or in the collection, at which conservation may be said to be complete. Conservation is a long-term commitment of resources and expertise to foil the forces of entropy as long as possible. The ultimate aim of conservation, from which all other goals derive, is the preservation of the resource for present and future generations.

Affiliation: _____

Vertebrate paleontology suffers far more from the lack of statistically significant samples than does invertebrate. Vertebrate specimens may require particularly great care of significant numbers if specimens in collections are ever to exist. They, and their surroundings in situ, are nonrenewable resources whose scientific value is contingent on the professionalism shown in their removal and handling.

Vertebrate fossils on public lands are a public trust; public access is not to be confused with private ownership. The United States led the world in establishing the concept of public lands. One objective of such lands is to manage a resource for the benefit of the public. That mandate has not been well understood or implemented in many areas, as witnessed by the furor over competing private interests vying for the use of renewable resources. The nonrenewable nature of other resources, and the different management entailed, is a relatively recent distinction.

In the interests of the public, the management of vertebrate fossil resources on public lands must be clearly understood, held to a professional standard of care in the selection of methods and materials, fully documented, and accessible to interested and responsible members of the public. It should be possible to track the location of every collection housing public-land fossils, so that statistical samples may be derived. The public does not benefit when good science cannot be done because information or specimens intended to be in the public domain are lost to it. Research, education, and interpretation mean very little in paleontology (as in the other organismal sciences) without specimens as both validation and source of testing. The integrity of the specimens and their full information must be protected by good conservation strategies for the sake of tomorrow's public as well as today's.

Conserving fossil vertebrate resources on public lands, then, requires a planned approach, thorough documentation and sampling in situ, careful selection of methods and materials, ready accessibility by responsible entities, and ready network availability on the location and nature of other public-lands specimens and data. Possible future values of the specimen should be taken into account when deciding its treatment; older materials and mounting techniques have damaged or destroyed the present research value of many specimens. The specimens and their sites, after all, have to be managed for the greatest good of the largest number of citizens. A manager of fossil resources on public lands has great responsibility, therefore, but also great accountability. Good conservation practices, standardized, documented, and upheld, enable the responsibility to be best realized and the accountability to be strengthened.

Name: Gregory A. Liggett

Affiliation: Fort Hays State University
Sternberg Memorial Museum

Fossils are the only source of information about past life on earth. Furthermore, fossils are a non-renewable resource; once gone they are gone forever. As such, it is imperative to recognize that fossils are part of the national heritage, and do not belong to any one person, but to everyone. This includes fossils on public and private land. However, the regulation on public and private land should not necessarily be the same.

It is inappropriate for fossils to have a market value in the same way as gold or oil. Fossils should not represent a monetary resource that can be "cashed in" like a mineral right. The true value in a fossil lies in not what it can bring on the open market, but rather as a clue, or piece of the puzzle in understanding the history of life. This value is priceless.

Public Awareness and Education

It seemed apparent at the Conference that there are many different ideas about what constitutes a professional, amateur, and commercial collector. As a basis for discussion, I offer these definitions of some commonly ambiguous terms.

Definitions

Museum: For this discussion, any organization that maintains a permanent fossil collection for research, and is publicly accessible.

University: Any accredited public or private institution of higher learning.

Institution: Any university or museum.

Professional Paleontologist: Any individual associated with an institution, who conducts publishable research on fossils. The individual does not have to be employed by the institution in order to be associated with it. When the professional paleontologist collects fossils, all material is deposited at some institution.

Amateur: There is a need to distinguish between two types of amateur: the Scientific Amateur, and the Interested Public.

Scientific Amateur: One who is not associated with any particular institution, but is interested in the scientific information that fossils hold. These individuals are often well informed, and are a great asset to the field of paleontology. Any valuable fossil find is donated to an institution. Scientific Amateurs hold the same code of ethics as the professional.

Interested Public: People who place the aesthetic or monetary aspect of fossils above the scientific value. They enjoy the beauty of mineralized bone, or a fossil skull, but have limited appreciation for the academic aspects of paleontology. These individuals may even have a monetary interest in fossils, as in selling trinkets made of fossils.

Commercial Collector: One who may or may not appreciate the academic aspects of paleontology, but whose primary interest in fossils is monetary gain. The commercial collector is not an amateur. Although some fossils may be sold to educational institutions, they are often sold away from public access.

Partnership Opportunities

The rationale for the definitions is that on occasion at the conference it was implied that professional paleontologists wished to exclude amateur collectors. However, it is the commercial collectors, passing themselves off in amateur's clothing, propagating this rumor. Professional paleontologists recognize

Name: Gregory A. Liggett

Affiliation: Fort Hays State University
Sternberg Memorial Museum

the contribution amateurs make to the field, and this partnership should be encouraged and enriched.

Likewise, public education should be a major goal of the paleontological community, for the research that we conduct is on public specimens, and all researchers are accountable to the public for the knowledge gained from public material.

Private Landowner Rights

All fossils should be considered public domain, regardless of where those fossils are found. A private landowner has a right to have his land respected; however the public's right to have access to a fossil is greater than the individual's right to reap a monetary gain from it. To illustrate, if there is an endangered species of bird sitting on my property, I do not have the right to shoot it, because the public's right to protect the animal is greater than my personal right to do as I wish on my land. Similarly, an individual should not be allowed to dispose of a fossil on his land, without consideration given to the value of that fossil to the public. Perhaps some sort of compensation for the fossils on private land could be made available in the form of a tax credit.

Public Land Management

Senate Bill 3107

The Baucus Bill, or the Vertebrate Paleontological Resources Protection Act, is a very reasonable bill. However, I would like to see stronger statements about fossils on private land. Also, the bill seems to promote regional repositories (discussed below).

Permitting and Enforcement

Some sort of permit should be necessary to collect on public land. The permitting process should not be lengthy, but a good record of who, where, and what was collected should be on record. This will ensure that land managers will be aware of the resources they oversee. All material collected on public land should remain accessible to the public in an institution.

Conservation and Preservation

Scientific Documentation: It is true that there are not enough professional or scientific amateur collectors to collect all the material weathering out. This is an argument for increasing the number of professional and scientific amateur collectors, not for allowing indiscriminate collection of fossils by the interested public or commercial collectors. If the material is collected and the pertinent information not recorded or lost through transactions, the material is as useless as if it had weathered away to dust.

Regional Repositories

Keeping fossils in the area in which they were collected could inhibit researchers from other geographic areas from collecting those specimens. Historically, researchers build a collection of specimens related to their individual research interest, and this would be impossible if the researchers live outside the area the specimens come from. I do not favor regional repositories.

Name: Helen Ross

Affiliation: Fox Hills Fossils, Timber Lake, SD 57656

I am a part time commercial fossil collector and feel that my efforts to locate and preserve fossils benefit Public Awareness and Education, Science Research, Economic Development and Conservation and Preservation. The current policy of not allowing any amateur or commercial collection of fossils on public lands is of great concern to me.

PUBLIC AWARENESS AND EDUCATION

Karl Waage, Yale University, the world's foremost authority on ammonites, taught me a great deal about them. Through the years he would visit me with some of his students and go through my collection. I gladly gave him any fossils he felt had scientific value. Sometimes he would write me with detailed information asking me to collect fossils he needed.

The Timber Lake and Area Historical Society established a free, not-for-profit museum in 1988. One of the main displays are fossils I had collected from this area over many years. Dr. Waage advised us on how to label and display them in a scientific way. It gave me great pleasure to make this donation.

The museum has become a teaching resource for the rural and town schools in the area. Teachers bring classes to the museum. I talk about each specimen and there are also hands-on displays. The first time a class visits I give them a box of fossils to take back to their school room. I've also put together a kit that can be checked out by teachers for further classroom study. We take kids on field trips showing them where and how to collect.

ECONOMIC DEVELOPMENT

This is not a wealthy community and neither am I. I'm almost 80— can't get a job and the only way I can afford to continue to collect is to buy and sell ammonites.

The museum brings tourists and people from surrounding areas into Timber Lake and that added traffic helps business. I also hire a person to help me find, collect and prepare fossils.

CONSERVATION AND PRESERVATION

We are not geologists. As taxpayers we should be entitled to help from the Geological Survey and other government resources that can help us. For example, if we are able to pinpoint the location of a fossil find perhaps they could give us the geological data needed for recording in a scientific manner.

Dinosaurs lived for millions of years. They are not exactly a "non-renewable" resource as an archaeological dig would be.

As fossils on public and private land weather out, they need to be recovered before they deteriorate and are of no benefit to anyone, neither education, science research, economic development or collectors.

Museum personnel, true amateurs, "your amateurs— affiliated with your depositories," commercial people and federal land employees should all be focused on collecting and preserving these bones as they are exposed.

Name: Marilyn Dahm

Affiliation: SDSMT

I thought the conference was good and brought to light many issues that need to be discussed.

Public Awareness:

It is my opinion that the public is not aware of the value to be derived from the study of paleontology. Legislators should be concerned about adequate funding of public institutions and universities which are the center of leadership in this field.

Economic Development: Fossils found on public land should belong to the public and not be exploited.

Private Land Ownership:

The Dakotas have no conservation easements even though 26 other states do. The landowner bears a disproportionate burden in preserving fossils and other special areas.

Name: Dr. Robert J. Emry

National Museum of Natural History,

Affiliation: Smithsonian Institution

Under the issue category **PUBLIC AWARENESS AND EDUCATION:**

I think there is a very direct relationship between public education and the preservation of important scientific resources. The general public now has very little understanding of what constitutes vertebrate paleontological research, and how fossils and the associated data are actually utilized. In this "general public" I would include most amateurs. Even many of the really knowledgeable amateurs who are technically capable of collecting, preparing and identifying fossil specimens, don't really understand what research scientists actually do, their data requirements, procedures, mechanics,---how fossils are really used in research. One often hear amateurs (and even commercial collectors, but for different motives), make statements such as "it doesn't do any good to donate fossil specimens to museums, because they are just stored away [for some reason often said to be in the museum basement] and are never seen again." Effective public education might stress the point that specimens in museum research collections are analogous to books in a library. Most books in most libraries are not used most of the time, but would anyone argue that libraries don't deserve more books because they are not using all the ones they have? A fossil specimen donated to a museum may indeed not be exhibited right away or studied by a researcher in that museum, but the specimen will be there, available at any time in the future to any researcher, from any institution, who happens to be doing research on which that specimen has some bearing.

All of the items under **Public Education** on the list of agenda topics (outreach, field opportunities, volunteerism), and undoubtedly others, are very important to pursue. I've often said that for research paleontologists, one of the great, largely untapped vertebrate paleontological resources is the large corps of amateurs who devote their energy, time, and often their own financial resources, to fossils as a pastime rather than as a profession. I'm sure that many would be thrilled to have a real opportunity to contribute their time and talents to an institutional, research oriented program. Many already do so, of course, and it is unfortunate that many institutions are so strapped financially these days that they lack even the limited funds required to provide supplies and facilities to take advantage of the generosity of those with the volunteer spirit.

Name: Dr. Robert J. Emry

National Museum of Natural History,
Affiliation: Smithsonian Institution

Under the issue category **PUBLIC LAND MANAGEMENT**

As I mentioned in discussion during the first day of this conference, I believe that for collecting fossil vertebrate material on publicly owned lands, it should not be difficult to establish reasonable rules that would be accepted and followed by reasonable people. But we must also acknowledge that it is probably not possible to establish rules that everyone will respect and follow; every issue seem to have someone occupying the extreme positions at both ends.

Those who argue that anyone should be able to collect vertebrate fossils on public land at any time with no restrictions, are, in my opinion, taking an unreasonable position. Vertebrate fossils, like any other publicly owned scientific or commercial resource, should be managed in the best interest of the public. The present rules are so confusing and conflicting that I see an advantage in having new legislation and regulations that would supercede all other rules for managing this resource. I think Senate Bill 3107 is close to what is needed, but I object to some of the provisions in the present version.

I don't believe that commercial firms should be absolutely prohibited from collecting on public lands. I do believe that the conditions under which this might be allowed should be fairly restrictive and clearly and rigorously defined. Perhaps the most important consideration should be the eventual disposition of any material collected. I believe that material collected on public lands should remain in the public domain. I can envision a scenario, for example, in which a public museum may contract with a commercial firm to provide an exhibitable skeleton of a certain kind of animal; I would not find it objectionable to permit the commercial firm to obtain a specimen from public land, as long as the permit requires that the material go only to a public institution. Alternatively, a permit might be issued to the public institution, and then that institution could make arrangements with a commercial firm to actually collect and prepare the material that the public institution needs. I would not favor allowing commercial collectors to collect from public lands for their own inventories, for sale to the general market.

GENERAL STATEMENT BY THE
WESTERN INTERIOR PALEONTOLOGICAL SOCIETY

The Western Interior Paleontological Society (WIPS) has been involved with the problems of paleontological resources on public lands since its founding in 1985. WIPS membership is open to the avocational, amateur and professional communities that are willing to follow the Code of Ethics and believe in the Statement of Purposes. WIPS does not represent the interests of commercial dealers, nor is represented by their organizations.

WIPS does represent one unified concept regarding public lands and that is that responsible individuals should have free and open access to public lands in pursuit of their various interests in the paleontological resources as law allows. WIPS feels that a "responsible individual" will at all times be primarily concerned with the protection of the scientific value of the paleontological resources and the conservation of public lands in general.

WIPS also believes that public land managers should encourage all responsible individuals to enjoy public lands, not only on ethical grounds, but as a realistic means to protect valuable resources. No group of people is more distressed by vandalism and destructive profiteering than those individuals who give of their own time, energy and financial resources to enjoy these public lands.

WIPS greatly respects the open discussion among many diverse and interested groups regarding an intelligent and ethically responsible policy toward paleontological resources on public lands. WIPS strongly endorses an open dialogue between the avocational, amateur, professional and commercial interests in paleontology. WIPS feels that this can be both a friendly and mutually beneficial discussion. In recent years, the professional community has often acknowledged the contributions of the amateurs. The amateur community has always relied on the professional for guidance and they recognize the value of curation, documentation and publication to secure the value of paleontological resources for the science. The avocational collector has always been the traditional nursery of interest that often fosters an informed public and the ground from which most future amateurs and professionals spring. The commercial collector has had a valuable place in the history of paleontology and it is hoped that they can find a responsible role in the future.

WIPS feels very strongly that public land managers should support and encourage individuals to use these lands in a responsible manner. Draconian legal penalties which are not carefully directed toward those few who vandalize and illegally profiteer off the public lands, will discourage the vast majority of good and honest people who are the most valuable resource for protection on these lands.

In conclusion, WIPS would like to make a few points that have been developed from experience:

- 1) Education is the real key to responsible use of public lands. Most importantly is the proper training of the amateur to protect the scientific value of the paleontological resources.

- 2) Land managers need to develop an understanding of the particular qualities of paleontological resources and not equate them with other resources.

- 3) The professional community needs to understand that the amateur community offers a valuable resource, not only as "helpers" but as a realistic means to protect and preserve these resources.

WIPS feels strongly that only mutual understanding and open communication among ALL interested parties will result in a successful policy regarding paleontological resources on public lands. Further, WIPS would like to thank those members of the professional community and the land managers who have offered so much of their time and understanding, demonstrating that mutual cooperation will benefit all groups and individuals who are truly interested in paleontology.

Douglas Nelson
WIPS

Name: Brad Ross *BJR*
Affiliation: Fox Hills Fossils

I) Public Awareness and Education - To increase public awareness and education there is a great need to allow amateur fossil collectors to hunt unencumbered, and provide reasonable regulations for commercial collectors to hunt fossils on public lands. Only by having fossils available for the public to examine and learn from will they become aware of the wonders of paleontology. For many people the best way to learn and share information about fossils is to have ownership by finding them or purchasing them. Public lands are the only areas available for many amateur collectors to hunt for fossils in their pursuit for knowledge. Public lands also contain tremendous resources of common fossils (examples are fossil fish, ammonites, and trilobites) that should be collected and made available for purchase to the general public as well as institutions.

II) Economic Development - There are several methods to derive economic benefits from our nations great fossil resources, including tourism and the sale of the fossils themselves. The tourism business would benefit if more museums with greater displays could be built. Instead of putting the financial burden for these museums on the taxpayer, the additional revenues needed could be generated by selling the more abundant fossils (not every type of fossil is abundant but many are). In addition, even more display specimens for museums could be purchased from responsible fossil collectors (to find responsible fossil dealers, check with the American Association of Paleontological Suppliers). It has been demonstrated many times that the private sector is more efficient and cost effective in business affairs than the government or institutions. The locating and preparation of fossils is no exception. This has been demonstrated in the recent past by the success of commercial companies in finding very significant fossils. They are good at locating fossils because they do it for survival. In a time that the world is going to the free enterprise system we should not try to eliminate it in the area of fossil collecting.

The sale of fossils to private individuals is also important to economic development. With greater sales from the commercial sector there are more jobs for discovering and preparing fossils. In economic times like we are currently in, I do not understand why anyone would want to eliminate or severely curb a portion of the free enterprise system. It also appears that many people don't understand that fossils provide an opportunity to decrease the trade deficit with Japan and Germany as well as increase scientific knowledge.

It should also be noted that most fossils are found on relatively barren land because erosion is needed to uncover the fossils (that is why so many fossils could be found on public land). Many of the land owners have a difficult time making a living on this land. Commercial collectors can help provide an income to these land owners. Most of these land owners need this income from fossils to help put food on the table more than they need a tax credit.

Public Land Management - It is apparent to me that some people would forsake a document agreed to by a cross-section of groups (science, education, government, and industry). in the form of the NAS Recommendations for a law (Senate Bill 3107) that would benefit a small group of people. The NAS team understood the need for promoting the search for fossils by all parties as being the only method to truly preserve that resource.

I believe that fossils are much like many of the government's other resources that need to be managed for the benefit of all the people. After all, do we not have parks and wilderness areas so all private citizens can enjoy the scenic beauty of nature? Should not then all citizens be able to enjoy the experience of looking for fossils? Are there not laws and regulations in effect that allow for the mining of minerals and coal, the drilling of oil, and the grazing of land? It seems odd that the government not only allows, but encourages the development of these resources for the benefit of large corporations, but balks when a small commercial fossil companies would like to develop public resources. This is especially true when considering that oil, coal, and minerals are non-renewable

Name: Brad Ross *BR*
Affiliation: Fox Hills Fossils

resources that will retain their value by being left in the ground but fossils are erodible and must be collected when exposed or lost forever. In that regard it should be unacceptable for public land managers not to encourage and promote the collecting of fossils on public lands by as many knowledgeable people as possible.

This does not mean that there should be no regulations pertaining to commercial collecting of fossils on public lands. Rules are needed to make sure that it is done by knowledgeable and responsible people so information is saved for science. I believe if all parties were given a chance to have an equal voice in the framing of laws and regulations that reasonable controls could be developed.

Conservation and Preservation - The single most important reason that land managers (public or private) need to promote fossil collecting is that fossils are an **erodible resource**. By erodible resource I mean that fossils are continually being uncovered by the actions of weather and if they are left uncollected they will be destroyed by nature. The only method to truly conserve or preserve fossils is to collect and prepare them. That is why it is so important that land managers promote the responsible collection of fossils by all groups and not try to limit collecting to a small group that could not possibly (physically or economically) cover all the areas that need attention. The Federal Government controls literally millions of acres of fossiliferous land. Unfortunately, significant and common fossils are being washed down the river from this land on a daily basis. There is nothing so disappointing to a person who loves fossils than to see the remains of a once great fossil that has been ruined by weather. That fossil and countless others have been lost to science, education, and economic development because there are not enough public resources to find them. It is obvious to field collectors that the more knowledgeable people you have looking for fossils the more fossils will be found and preserved. The commercial and amateur collectors already provide great resources for helping the scientific and education communities locate and prepare fossils. This is shown by the number of important discoveries made by amateurs that look for fossils and commercial collectors that have a proven record of being able to locate and prepare fossils using accurate and efficient methods.

If all the energy that has been put towards eliminating commercial collectors and limiting amateur collectors was channeled into building communications between all collectors for an exchange of information, all citizens would benefit. The commercial and amateur collectors already work towards this as they donate rare specimens to institutions, give talks to school children, join organizations to share information, and write articles for publications. By building on the one thing all parties have in common: the love of fossils, we can indeed insure there will be "Fossils For The Future".

The "Fossils for the Future" Conference - I was very disappointed that the organizers of the conference were so biased against commercial collectors and did not fairly represent the amateur collecting community. This was obvious by the selection of the speakers on the first day, four of which were very anti-commercial and an amateur collector that did not belong to any of the many large amateur organizations. This compared to one commercial collector that had twenty minutes in a panel group. It appeared that the intent of the conference was not to help preserve fossils for the future but to eliminate commercial collecting of fossils. This is one of the few times that someone tried to make me feel that capitalism is bad (that the only thing business is interested in is money and profit) and the private sector and general public can not be trusted. It is sad to think that a part of my government would have such beliefs or so little understanding of the free enterprise system.

Agenda Topic: IV. Public Land Management

I would like to comment on two aspects of the meeting and Agenda Topic IV, Senate Bill 3107 and commercial collecting on Federal lands. My thoughts and comments are a result of the discussions I had with individuals from the private sector, the Federal government, and the various state agencies represented at the Conference.

Overall I think that Senate Bill 3107 is a step in the right direction. What we saw at the Conference was the Bill as introduced. Absent the normally changes and modifications introduced by committee, it was a remarkably well written piece of legislation. Nonetheless, I believe the following areas need further consideration:

1. Section 4 Definitions, (3) Paleontological Resource. This section references the scope of the regulations. It may well be that that scope is too limited? While expanding it to more than vertebrate fossil resources may place the passage of the Bill in danger, not to do so may leave, for a long time into the future, an uncertain void.

That void is how to administer other fossil resources, botanical and invertebrate animals, that likewise might need protection? Very often the volume and occurrence of invertebrates and many botanical assemblages does not demand unusual protective measures. However, there are situations where the resource is unique/rare, is limited geographic extent, and/or in danger of being depleted or destroyed and, therefore, needs some protection.

This protection could be provided by introduction and passage of another bill. But now seems to be the time to take care of this need and, in some way, include that protection in S. 3107.

2. Section 7, Custody of Resources, (a) In General, (1) Disposition, (B). In my opinion, one of the main objectives of management should be to encourage research. A provision to require any paleontological resources collected to "...remain in the vicinity of the site from which the resource was removed." may well serve to defeat this objective. Museums and academic institutions will have little incentive to invest time and money in collecting and research in areas far from their "home" environment if they can not display the results of that collecting and research. For instances, what would be the motivation for the University of California to collect in Wyoming if what they found could not leave Wyoming and be displayed in California? This would not be of concern if the state of Wyoming had a number of institutions that could conduct the volume of collecting and research that the available resources provide, but it does not. As a result, much valuable research would not occur under this provision of S. 3107. While well intentioned, I think this provision needs

to be reconsidered or modified to provide for removal and for access by the "geographic" locality from which the materials were derived.

2. Section 7, Custody of Resources, (a) In General, (3) Exchange. This provision is inconsistent with the provisions of Section 2-(11) (page 3) and Section 4-(2) (page 6). If the various federal agencies are to be responsible for resources occurring on lands under their respective jurisdiction should it not be they who are to "...provide for exchange..." of resources between institutions rather than the Secretary of the Interior?

3. Section 8, Prohibited Acts and Criminal Penalties. I would suggest the insertion of the word "knowingly" in (b) and (c) so as to read:

"(b) Wrongful Trafficking Under Federal Law.-No person may knowingly sell, purchase, exchange..."; and

"(c) Wrongful Trafficking Under State or Local Law.-No person may knowingly, sell, purchase, exchange..."

Finally, the issue of commercial collecting on Federal lands. At the onset of the meeting I will have to admit that I was skeptical as to whether or not commercial collecting of vertebrate fossil resources could, in any fashion, be allowed on Federal lands without compromising the scientific integrity of those resources. However, after listening to the formal discussions and after many informal discussions I would like to offer the following as a compromise. I do recognize that what I am about to offer here will not go far enough for some, the commercial collector, and too far for others, state and federal administrators and concerned "scientists." It will require all interested parties to confer on species to be collected and collection/curation approaches.

First, the interested parties would have to review the fossil resources and determine which could be available to commercial collectors. For instance, in North and South Dakota, because of their "relative" abundance, certain species of oreodonts. The methods of collecting and data to be kept would have to be no less than that required of academic institutions. To counter the concern that fossil resources once sold would pass from the "public domain" for future research casts/copies of the resources could be required and placed in a designated repository. I do recognize the rarity of some species, i.e. T. rex, would never allow them to be available to commercial collectors. Nonetheless, what I'm proposing will give the commercial collector some access to resources on federal lands.

Name: Jennifer Wicklund

Affiliation: Potomac Museum Group

PUBLIC AWARENESS AND EDUCATION

As part of my summer internship with Potomac Museum Group, a non-profit organization dedicated to fossil preservation and public education, I was a participant in the Northern Plains Governors' Conference. Being an undergraduate student in geology/paleontology at Macalester College in St. Paul, Minnesota, I was in a curious position at the conference. Listening to the speaker presentations on Tuesday, August 25, I realized that in a way I was a representative for both "sides" (after all, that is what the two opposing viewpoints became, is it not?). After all, I was a participant representing a private fossil business but also an "academic" with visions of graduate and professional study in paleontology.

It seems that the descriptions "academic" and "amateur or business collector" are not allowed to mutually coexist. However, in order for the controversies to be resolved, the "us/them" perspective must be dispelled. Government employees and those holding a PhD in paleontology are not the only individuals with knowledge of paleontological issues. Amateur collectors have made significant scientific contributions to the study of paleontology. Amateurs are also very open to and frequently more accessible for the educating of the average person and child, promoting interest in the science. Usually, amateurs are not in their field for the profit. Selling fossils does not bring in a large cash flow, as seemed to be the mistaken concept at the conference. It is most often done for the sheer love of the science and education.

There appeared to be many preconceived notions about amateur collectors and fossil-sellers that could not be properly addressed because of the tragic circumstances that cancelled the conference. In the opinion of many, the descriptions and stereotypes of the amateur collector made by such academics as Jason Lillegraven were slanderous. And because of the circumstances of the conference, only the academics and government employees had the opportunity to present their opinions. As a result, participants left the conference with skewed and frequently incorrect knowledge.

The Governors' Conference was not a conference at all. What conferring was done? What resolutions were mutually agreed upon? It seems to me that the Conference was more a symposium for academic propaganda than a true open forum.

And why give it the facade of a Governors' Conference when only one Governor out of six was present, and at that, only present for a twenty minute welcoming speech? Participants were to be appeased with the fact that the Governors each were

Name: Jennifer Wicklund

Affiliation: Potomac Museum Group

represented by unbiased delegates, when in reality the Montana representative, Pat Leiggi, and the Wyoming representative, Brent Breithaupt, were both speaking from the perspective of the academics.

Obviously the issues at stake have yet to be resolved. Hopefully, future meetings will allow these controversies to be dealt with in a more open way so that all participants will be able to communicate and respond to contrasting views. It is not only the academics and government institutions that have the sound right to fossils. The knowledge and experience of amateurs is valid, and what they may "lack" in academic credentials they possess in their sense of purpose and enthusiasm. Let us not let something as paramount as the future handling of the earth's fossils come down to a case of "supreme credentials". We are all more intelligent than that.

Jennifer Wicklund

Name: Wade E. Miller

Affiliation: Earth Science Museum

PUBLIC AWARENESS AND EDUCATION

There is no question that the public need to be enlightened on the value of fossils and that they are a nonrenewable resource. They (the public) need to know the role fossils serve in understanding our earth, the changes it has undergone and yet may undergo. To understand today's environmental problems, that affect all of us, we must understand how and why environments have changed through time. Fossils are critical to this understanding. And this can only come about when they are properly collected and studied. Everyone with an interest in fossils; people, institutions and agencies, public and private, must cooperate and develop programs to teach the uniformed. There needs to be a coordinating effort between the various entities to make this effective. An informed and motivated federal government agency needs to take the lead on this. Most fossils in public and private institutions come from government lands.

ECONOMIC DEVELOPMENT

Important fossils, as determined by professional paleontologists, should not be sold. Information they can provide would usually be lost with their sale. Since important fossils collected years ago are often restudied in light of new knowledge and technologies, it would be a serious error to sanction their sale after an initial scientific description. They need to be housed in a responsible institution (e.g., museum, university, etc.). More could be done to encourage the sale of casts rather than actual specimens. Any commercialism of vertebrate fossils should be done such that original specimens are always available for scientific study, including in-place exhibits. Commercial collecting of fossil vertebrates should always be done under the direction of a professional paleontologist representing an acknowledged institution, with collected material going to schools or other institutions where the fossils would be used for educational and/or research purposes. Important vertebrate fossils should never go to people or entities where they would be removed from the purview of science.

PUBLIC LAND MANAGEMENT

Adequate legislation and regulations must be developed for the protection of vertebrate fossils on all public lands. They are a national heritage of inestimable value. Many third world countries provide more protection for their fossils than does the United States for theirs!

Historically, going back to the 1906 Federal "Act for the

Name: Wade E. Miller

Affiliation: Earth Science Museum

Preservation of American Antiquities", fossils have been closely associated with archaeology, usually as a lesser appendage. Various acts and other legislation since 1906 have not done a great deal to clarify the situation. Paleontology, with its major data source, fossils, clearly needs separate regulations and considerations. The proposed senate bill 3107 provides a much needed and long overdue legislation to address this matter. While the presently drafted bill needs some revision, it is basically sound, and with minor revisions should be adopted as soon as possible.

Surveillance and monitoring of paleontologically sensitive areas should be made. This in large measure could be done by joint efforts of institutions employing professional paleontologists and the various governmental land agencies. More money will need to be appropriated for this. Baseline data will need to be obtained and shared by the various entities. Presently an alarming number of important fossil sites are being illegally collected with the result that many important fossils are being lost to science.

CONSERVATION AND PRESERVATION

Any institution wishing to be recognized as an accredited repository for vertebrate fossils must maintain adequate care of same. If federal agencies give such recognition it should be based on the past record of that institution and how they are regarded by the professional paleontological community. If an institution wishes to begin a paleontological program and become an accredited repository, it might best serve science to have the Society of Vertebrate Paleontology, through its Executive Committee, determine the acceptance or rejection in concert with the lead government agency.

Name: David Phelps

Affiliation: Western Dakota Gem & Mineral
Society

First, I must identify myself. I am neither a commercial nor an amateur paleontologist. I am an amateur geologist. A rockhound, if you will.

I would enjoy sharing my comments and ideas on all five topics, but because of space limitations and because my discussion group was to be Public Land Management, I will limit my comments and ideas to this one topic. Since little discussion took place at the conference, I will use the speaker presentations, conference materials, S3107, the NAS Study and other documents as a basis.

1A) Legislation and Regulations -- Existing and Proposed
In reviewing the existing laws cited for managing paleontological resources on public land, I find a certain vagueness. The intent and spirit of the main body of law is directed toward anthropology, or more specifically, the sub-discipline of archeology. When paleontological resources are mentioned, the application is limited to either a very specific type of public land, such as National Natural Landmarks, or to a very specific group, such as "all federal contractors" or "removing any paleontological resource for commercial purposes without a special use authorization." It is clear that it is not only this vagueness, but also commercial collecting which are at the heart of the controversy over fossil resources. I believe this assertion is best summed up in the introduction to Appendix R of the NAS report. It is also quite clear that Federal Land Management agencies need a framework designed specifically to manage fossil resources. With such needs, I have to question the reasons why the Paleontological Resources Conservation Act (S1569) introduced in 1983 died in committee.

1B) NAS Recommendations -- The NAS report was found to be extensive and complete. It is well balanced and took everyone, including the S.V.P., into account. While it is five years old, such a comprehensive document is timeless and would serve well as a framework for land managers. It would also best serve the sciences involved. While it does not satisfy everyone, it does satisfy the majority of scientists and the public. It is an excellent unbiased consensus report. I highly recommend its implementation.

1C) Senate Bill 3107 -- I regret that I have many problems with this Bill. It is very poorly written and ill-considered. For instance, under Sec. 4. Definitions, an amateur must be "affiliated with a suitable institution." How is this to be interpreted? If I were affiliated, I would not be an amateur. Does this mean if I am a secretary at a museum or school of geology, I can dig fossils?

This Bill would create instances of extreme hardship on innocent people. If I were to move my rock collection (which contains a fossil) to a new residence, and used an interstate highway, I could be arrested and prosecuted under Sec. 8. Prohibited Acts, (b) Wrongful Trafficking, unless I could prove where I obtained my specimen.

I do not see the validity of all fossil resources obtained from public land remaining the property of the government. One of the main motivations for collecting anything is keeping what you find.

Name: David Phelps

Affiliation: Western Dakota Gem & Mineral Society

Under Sec. 7. Custody, I do not agree with keeping fossils in the "vicinity of the site from which the resource was removed." This would impede research capabilities. These are but a few examples of a law which if enacted would be too restrictive, contains too much red tape and would be too expensive. S3107 would be a severe setback to paleontology and related sciences. The remedy is worse than the disease.

2) Permitting and Enforcement -- At the conference I heard the statement that fossils are a "finite" resource. There are no geological resources that are not finite. From this perspective, I would suggest that there are mechanisms in place which, with some modification, could be used for commercial collecting.

I do not understand the loathing I observed toward commercial collectors. The ones I met at the conference are in the scientific community and have contributed a great deal to paleontology. We saw and heard of instances of vandalism, but, I am sure no one at the conference would condone such behavior. It is a mistake to lump one segment of the scientific community in with vandals. Scientific commercial collectors are valuable to paleontology and should not be punished, and their contributions lost, for paying their own way.

A) Surveillance and Monitoring -- Again, I must point out the potential value scientific commercials could be to land managers. With appropriate permits and oversight, when allowed to collect they would be frequently in the field and could serve as monitors of sensitive areas, reporting back to land managers. This would be at no cost to the taxpayer. If a fee were collected for permits, or even for specimens removed, this would provide funding for land management programs.

B) Closure/Open Areas -- In view of the fact that a fossil, once exposed, is lost to science for all time by erosion, I feel all fossils should be collected. Perhaps some areas should be set aside for the exclusive use of museums and colleges to obtain specimens for their collections. This might add to educational opportunity, but it probably would not save the institutions any money. A fossil in and of itself is not valuable monetarily. What makes a specimen like "Big Al" worth half a million dollars are the thousands of hours it takes not only to collect, but to prepare. A commercial collector could probably do it for less.

3) Funding -- The National Paleontological Data Base is housed within the US Geological Survey. As per the MOU between USGS and land management agencies on "Management of Fossils on Public Land," this information is available to managing agencies. Therefore, it would seem a redundant exercise for management agencies to gather and manage Baseline Data.

A & B) Gathering and Management Costs -- This approach would create a huge new layer of bureaucracy with all its inefficiency. In view of Federal budgetary problems, Government is rightly looking for ways to cut spending and waste. Besides, current scientific method achieves data gathering and management.

C) Law Enforcement Costs -- This could be kept to a minimum by working with scientific commercial collectors and legitimate amateurs. Deploy these people. There will be thousands more eyes watching for vandals and poachers than there are currently, or under S3107.

Name: John T. Alf, Dixie Lee Alf

Affiliation: Rocky Mountain Federation

1. Nothing at all should be published regarding proceedings of the aborted conference. The format of the conference gave no opportunity on the first day to offer any rebuttal to the almost totally biased presentations on that day; then, the untimely cancellation of the conference, of course, completely precluded any such subsequent opportunity. Under these circumstances it would be improper to publish the formal presentations and rely on what written comments you may or may not receive to make known the views of the other side. In the opinions of two representatives of the amateur community, we strongly oppose any such publication.
2. It was only after vigorous protest that anyone at all representing the amateur was placed on the agenda, and it appears that the person chosen was picked simply to calm such protest rather than to provide real representation for the amateur. Mr. Wade Winters, who has no affiliation with any amateur society, was a person we had never heard of before, and no amateur we talked with before, during or after the conference had ever heard of him. Not surprisingly then, he devoted most of his speech to telling about the bad things some amateurs do in their collecting activities. The American Federation of Mineralogical Societies has a membership of over 50,000 people, and if the organizers of the conference had been sincerely interested in obtaining a legitimate representative for the amateur, they could easily have chosen someone from this pool.
3. The only concession given the amateur that we could discern was that if he were properly trained and properly affiliated, he could perform a valuable scientific service. The activity which historically represents the most usual way amateurs pursue their hobby, casual surface collecting or collection with minimal surface disturbance, was not mentioned as being legitimate. This is a legitimate activity, however, and it is nonsense to contend that, for example, every lump of dinosaur bone, particularly that which has no recognizable anatomical configuration, is scientifically valuable. In truth, these unrecognizable lumps are, indeed, quite valuable, but for purposes other than scientific. They are important to the lapidary hobbyist because of their aesthetic value--good reason to allow persons other than just scientists to collect fossils. Implementation of the draft regulations prepared by the Bureau of Land Management following our Negotiated Rulemaking sessions of 1989 and 1990 would serve both interests, permitting casual collecting to continue, while at the same time protecting valuable scientific resources.
4. Most of the speakers premised their views on the need to protect fossils because of their scientific value. When anything other than scientific value was referred to, it was in disparaging terms, such as how bad it was that someone not a scientist would choose to display a fossil on his mantelpiece. Fossils are a national resource, belonging to all the people of the United States, not just the scientists, and other people also have a right to use them. The most effective way to serve both of these legitimate interests is to allow commercial collecting on a controlled basis that will insure that scientifically significant specimens go to the scientists, while allowing other, non-rare, specimens to flow into commercial marketing channels. Again, this can easily be achieved by implementation of the BLM draft regulations.

Name: _____

Affiliation: _____

5. Several speakers made the point that persons other than professionals should, when they discover a fossil weathering out, leave it in place and notify someone, either land manager or professional, of the find. The futility of this admonishment is well known to most amateurs, who have had experiences, or have heard of others having experiences, where such information has been given to the scientific community, only to have it ignored. Since the discoverers were not allowed to excavate, the result has simply been destruction of valuable scientific, commercial or hobbyist resources. Without expenditure of a great deal of taxpayers' money or scientific institution money, both of which are in short supply, this situation will not improve. A possible solution would be to utilize a permitting system such as that proposed in the BLM draft regulations and allow commercial people to evaluate such sites, with right to collect if the material is not scientifically valuable.
6. The value of the report, Paleontological Collecting, prepared by the National Academy of Sciences, was called into question by several speakers, sometimes in unrestrained terms. It should be noted that this report was prepared by a group of distinguished scientists and others, who exhaustively considered all aspects of the issue of fossil collection. To downgrade this work is reprehensible. What is needed now is a sincere effort to build on the work that has already been done, not just summarily to discard it and start anew. It also should be noted that a majority of the members of the Society of Vertebrate Paleontology supported the recommendations contained in the NAS report upon its release, but it is the Executive Committee of that organization that now opposes those recommendations.
7. We heard many expressions of praise for the proposed bill, S-3107, The Vertebrate Paleontological Resources Protection Act. This bill goes to significant lengths to extol the virtues of the amateur collector but then proceeds to define "amateur" in such manner that about 98% of all amateur hobbyists couldn't qualify. It is also excessively heavy-handed in the severity and manner of imposition of the penalties it would levy for infractions, and its provision that all collected paleontological material would remain the property of the Government is unacceptable to the amateur. Amateurs did not have any opportunity at the conference to express opposition to the bill, and we now are using this occasion to voice such opposition.
8. It is unfortunate that the issue of fossil collection has degenerated into an "us" versus "them" situation; however, the way the conference was developed, from its early planning stages through to its final form, only served to polarize the parties further. The bias of most of the listed speakers has previously been mentioned. Additionally, Government and institutional participants had their expenses paid for them, but not only did the amateurs have to pay for their own travel and lodging expenses, but they bore the added burden of having to pay a \$50.00 entrance fee. One can only conclude that the organizers wished to minimize as much as possible any expressions of contrary points of view.
9. The opinions expressed herein are those of the President elect of the Rocky Mountain Federation of Mineralogical Societies and the Chairman of its Public Lands Advisory Committee.

REPORT

History

In South Dakota there has been almost no cooperation between the state's only institution of higher learning which offers classes in paleontology and the museums of the state or for that matter with the amateur or commercial fossil hunters in the state. The paleontologists who teach at the School of Mines and Technology have demonstrated little interest in reaching out to smaller museums within the state which have fossil collections. I have also heard of several instances where their lack of response has resulted in vertebrate fossils or potentially important fossil sites being turned over to commercial collectors. An attitude has existed which has alienated land owners and responsible amateur collectors.

The Museum of Geology at the School of Mines has for some reason chosen not to be included in the fraternity of museums in South Dakota. As far as I can tell they have never been a member of the Association of South Dakota Museums and have felt that it was in their interest not to be included within the state museum system, in spite of the fact that they are also dependent on state taxes for much of their support.

Their outreach program seems to be limited to a small circle of friends and alumni. The School of Mines has a long way to go toward earning the confidence of small museums and amateur paleontologists in South Dakota.

State Paleontologist

If an Office of State Paleontologist is established in South Dakota it should be set up independently of the School of Mines but seek to help it and other institutions to better serve amateurs and students who are interested in fossils.

In general, the State Office of Paleontology will need: (1) a civilian board to set its philosophy, (2) sufficient funding to operate and actually do some good, and (3) a field paleontologist with administrative and teaching skills.

Landowners' Rights

For years paleontologists (amateur and professional) and museums (big and small) have often run rough shod over landowners' rights. Landowners have every right to share in what ever wealth is taken from their land. We can no longer pretend that these are just rocks or that scientific information has no financial value.

Senate Bill 3107

The proposals put forward under the auspices of the Nation Academy of Sciences Committee on Guidelines for Paleontological Collecting come far closer to meeting the needs of the public than does Senate Bill 3107.

The States need to provide more funding and technical assistance to their own institutions so that they can better provide for the fossils within their borders. The federal government too, could do a better job of managing the resource, educating the public and working with the states, tribes and with local institutions.

I wrote the following editorial to amplify the unanimous vote of our museum's board of directors when they went on record in opposition to Senate Bill 3107:

Bill threatens fossil hunting

Senator Max Baucus of Montana has introduced a bill in the U.S. Senate that if passed could do damage to the Timber Lake and Area Museum and other smaller museums that have collections of fossils or would like to include paleontological specimens as part of their collection.

The bill (SB 3107) is called the Vertebrate Paleontological Resources Protection Act and has as its rationale the protection of fossils from commercial and amateur collectors who in recent years have become more visible in the field of paleontology.

Although the proposed bill gives lip service to protecting the interests of private individuals and amateur collectors, it would in effect eliminate all private collecting on federal land and Indian land and seriously hamper collecting on state and privately owned land by all but approved professional paleontologists that are affiliated with "suitable" institutions.

Since most amateur paleontologists trade and sell some fossils in the pursuit of their hobby, the line between commercial and amateur is not clear and since in the past many of the most respected natural history museums have bought and sold fossils including vertebrate fossils it is less than clear who the "good guys" and "bad guys" really are.

What is clear is that if passed the Baucus bill would set up a complicated and expensive bureaucracy that will have broad new authority over an activity some have taken for granted. It will vest tremendous regulatory, legal, law enforcement and even scientific authority in professional land managers employed by the federal or state government.

Many scientists believe that the bill, which is modeled after the 1979 Archaeological Resource Protection Act (ARPA), will seriously slow the science of paleontology by taking amateurs out of the field, driving collectors underground, putting commercial collectors out of business and discouraging the public's interest in dinosaurs and other fossils.

There is even some concern that children who mistakenly pick up a fossil (rock) while on public land could be prosecuted and fined. Earth science teachers would have to exert extreme care while on field trips lest they violate provisions of the proposed law.

Although the bill is primarily directed at federal land, there are already concerns that its provisions could be expanded to include privately owned land.

Another thing which is known is that the bill favors the larger, more financially endowed museums and will encourage them to get bigger in order to take advantage of the newly-granted responsibilities. Many of these museums already take a rather imperial view of their state or region. If the bill passes they will have little choice but to seek control and dominance over their area. Their academic and economic future will depend on having or securing the government-sanctioned monopoly that will flow from the passage of this bill. This will keep the private and public money coming in. The end result will be a jungle of political and academic cronyism.

Amateur collectors are the lifeblood of small non-profit museums like our own. Without the support of Helen Ross the Timber Lake and Area Museum would have no fossil collection and very little of the scientific information that backs up the collection.

Small museums that are staffed by volunteer workers are generally not eligible for most of the grants that are available to fully staffed museums and would consequently probably not be considered to be "suitable" institutions no matter how significant the collection or how scientific the collecting and curating.

Senate Bill 3107 has further divided the scientists who study fossils. The executive board of the Society of Vertebrate Paleontology, which opposes all commercial collecting, supports the bill (see story). Other paleontologists, both professional and amateur, are opposed to the bill. Officials at the School of Mines and Technology in Rapid City and the Museum of the Rockies in Bozeman, MT have come out in favor of the bill.

Both sides claim to have the welfare of the fossils and science as their goal. To a non-collector and non-scientist looking in, the issues seem to be job security, professional advancement, budget bolstering, monopoly control, economic exploitation, academic elitism, turf protection and greed.

—JFN

Since opening four years ago our local museum has become a repository for fossils from the Fox Hills Formation and to a growing extent the Hell Creek Formation. So far we have enjoyed and benefited from support from amateur collectors, Dr Karl Waage and The Peabody Museum at Yale, several other out of state paleontologists and even from the Black Hills Institute of Geological Research.

The cause of fossils and science is not helped by people like Hugh Genoways and Pat Leiggi who are placing more importance on their new cause than they place on the truth. While many professional, amateur and even some commercial paleontologists would and could cooperate, these men and their allies see no middle ground.



PALEONTOLOGICAL RESOURCES ON PRIVATE LANDS

POSITION ABSTRACT

Dr. Michael E. Nelson
Dr. David Gillette
Dr. John Hoganson

Scientifically collected fossil vertebrates are unique, nonrenewable, educational, and scientific resources that occur in the Earth's crust. These fossils provide the only data by which scientists can reconstruct the history of vertebrate life on this planet, and are one of the primary means of studying long term effects of evolution, emigration, immigration, extinction, natural catastrophes, episodic phenomena, climatic changes, and global changes induced by tectonic effects. Increasing concerns over deterioration of the global environment point to an ever-increasing need to understand past changes in vertebrate life and past global environments. These investigations can be analyzed only from the study of fossils. All persons must share in the ethical responsibility to protect, preserve, and enhance this national heritage.

All paleontologists, land managers, and landowners are morally obligated to ensure that vertebrate fossils are collected, prepared, and curated in a professional manner so that they may be utilized to their fullest extent. Vertebrate fossils should be left in place and should not be disturbed except during professional excavation. Unsupervised private collecting activities should be discouraged through public education. Information about collected fossils, and their accompanying data, should be disseminated to the scientific and interested public via research reports, peer-reviewed journals, and non-technical articles. Ideally, all vertebrate fossils, and their accompanying data, should be housed in accredited repositories, including museums, universities, and colleges

where they will be cared for and will be available to all persons for scientific and educational study, and for public display.

Each state should appoint a designated state paleontologist, with professional experience and appropriate education, and a consortium of university and museum professionals to serve as a liaison between public land managers, private landowners, and accredited repositories. The State Paleontologist and the paleontological societies should provide support for landowners and should develop permanent and broadly based educational programs to inform landowners about the best utilization of their resources.

Given these statements, we agree that private landowners have the right to determine the disposition of fossils from their property. A number of choices are available to the private landowner. Of these, selling to a commercial dealer, or donation to a public-supported institution, are the two most commonly chosen paths. Each has its attractions and disadvantages. The sale of fossils provides immediate income, but insurance liabilities, fair market value, damage to property, and the loss of specimens for educational purposes remain as problems. Donation to a public institution allows the landowner a tax deduction at full market value, and insures that the specimens will be available for all interested parties in perpetuity. The fossils will become part of a learning base in which all may share, but the immediate remuneration will be lost. Therefore, each landowner must decide whether the short-term remuneration is more important than a full-value deduction and long-term care and educational use of the specimens. And finally, each landowner must decide if their fossils should remain locally, in the state, in the county, or sold to foreign interests abroad. Many of America's most significant fossils are now being marketed via this latter option and significant information from these specimens is then lost to mankind.

Assigned Group at Meeting:
Public Awareness & Education

Name: John P. Babiarz

Affiliation: Babiarz Institute of Paleontological
Studies
(B.I.O.P.S.I. is a non-profit Inc.
research organization)

FOSSILS FOR THE FUTURE

I. Public Awareness & Education

Due to the unfortunate incident surrounding the seizure of the infamous South Dakota T-Rex, public awareness has been compounded ten-fold; from the back rooms of small museums, institutions, and universities, to the front pages of The New York Times. Not since the old fossil wars of Cope vs. Marsh has there been so much notoriety. Personally, being only an amateur paleontologist, I feel there are far greater impending problems facing this country (the budget deficit for beginners) to warrant the attention now being given to the field of paleontology.

Although public awareness has certainly increased, public financial support has not. Most of the founding fathers in the field were independently wealthy long before becoming paleontologists. Public financial support is positively necessary if the field is to continue its existence. Legislating taxpayer's dollars toward that goal will never be publicly acceptable, nor economically feasible. Certainly a partnership between the millions of citizens and the Federal and State Departments will be necessary. The N.A.S. report has promulgated a reasonable program toward public consensus. The ground work has been completed; now it is time for the BLM to "grab the bull by the horns" and proceed with the ten recommendations.

Currently the Denver Museum of Natural History has initiated a successful amateur education program. South Carolina also has a hobby license program in effect, and Florida has followed suit. We are all one people, one country; a definitive team effort is needed, not legislative rhetoric. Making criminals out of citizens is criminal. Allocating billions of dollars into S-3107 won't work! What a failure the drug program has been. Can we afford a similar fiasco? Possibly using public education as an issue, an ad hoc committee of local, amateur, commercial, and professional people could be assembled to represent each state. Let them address the issues, and then make the appropriate legislation.

II. Economic Development

A respect of law, nature, and economic development is the key to success and the "Democratic Way". Mr. Charles E. Clay, President- Mammoth Site, was one of the few speakers adept at the economic impact concerning paleontology. His program of "earn before you spend" is synonymous with any successful business. Government, however, typically spends before any consideration of earning. Hopefully those professionals in the audience took copious notes.

Commercialism in the field of paleontology was heavily promoted by most large museums up until 1986, when the tax incentive loophole for donors was eliminated. This left a vast amount of surplus material at the market level and allowed for the promotion of private collections. Ultimately these private collections will end up in museums, but the loss of scientific data attached to these collections needs to be addressed.

Retaining the market for fossil specimens is imperative, and is in itself a healthy, long-term scientific incentive program. Focusing on returns of income and a sound profit margin is necessary. Selling a dinosaur for \$500,000.00 is wonderful. The Museum of the Rockies condemned the thought of such a sale. However, that \$500,000.00, if put to constructive use, could have financed the graduate work of five people whose salaries over the next 25 years would have generated some 2 million dollars alone in tax revenue. That would be enough to buy the

Name: John P. Babiarez

Affiliation: Babiarez Institute of Paleontological
Studies Inc

dinosaur back, with a surplus of money left over for additional research and collecting. Dinosaurs are not rare. Case in point: over the last 200 years 8 T-Rex specimens have been discovered. Yet in the last 4 years, 3 additional specimens have been collected! Why? Because someone had the monetary incentive to go looking.

III. Private
Landowner
Rights

Private Landowners Rights are spelled out in the Bill of Rights, and the United States Constitution- they should not be addressed here. They don't need any modifications: End of discussion.

IV. Public
Land
Management

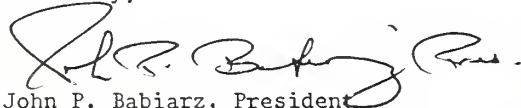
The term "Public Land Management" is an oxymoron. Public land has turned into the private estates of those paid to manage these properties. They should be opened up to the public, or offered for public sale. Public land should be for the public, not just for special interest groups as in the lumber, coal, gas, and oil industries.

V. Conservat-
ion &
Preservat-
ion

There aren't enough football stadiums available to preserve all the fossil material being currently collected on private land, let alone that legally collected on BLM and State properties. Certainly a computer disk occupies less space than a dinosaur. Fossils are a renewable resource as long as there is continual erosion and land mass movements. We'll be long gone off the face of the earth, and T-rex's will still be eroding away, patiently awaiting alien collecting crews!

I'm enclosing some additional material for your reading pleasure, or at least it's recyclable scratch paper!

Sincerely,



John P. Babiarez, President
Babiarez Institute of Paleontological Studies Inc.

JPB/dab

Enclosures

Name : Robert A. Farrar
Affiliation : Black Hills Institute

I. PUBLIC AWARENESS AND EDUCATION

The key to successful public education and awareness about fossils and fossil collecting is through coordinated cooperative efforts involving all federal, state, local, and private entities interested in the topic. The "disinterested" public can be reached in a variety of ways, many of which are already established, through public and private museums, private business, and organized societies - both amateur and professional. Hands-on experiences with real fossils are essential to continued interest in the science.

II. ECONOMIC DEVELOPMENT

The economic development aspects of paleontological remains are, as of yet, little exploited. The sales of common fossils plays an important part in most aspects and instances of successful economic development utilizing fossil remains. Few sites exist where in-situ deposits are feasible tourist attractions, but fossils sold or exchanged to museums or private collectors can lead to a steady stream of visitors to accessible sites, seeking their own discoveries. Small, private museums and gift shops also attract tourists and amateur collectors. Such visitors can offer a significant boost to the economy of small rural towns.

III. PRIVATE LANDOWNER RIGHTS

Private landowners must remain free to do whatever they wish with paleontological remains found on their lands. The discovery and disposition of fossils from deeded land can be handled , by the owner, in a variety of methods without governmental interference. "No strings attached" volunteer government programs may seem helpful, but I see few, if any, examples where this type of program is really beneficial to anyone but federal land managers.

IV. PUBLIC LAND MANAGEMENT

I fully support open access to public lands for all persons. Excessive restrictions and regulations are simply not in the public interest. Mechanisms to implement commercial collecting and to allow private ownership of materials found on public lands are essential. After all, gas, oil, and coal are fossils, and their exploitation is encouraged.

All attempts, thus far, to regulate fossil collecting have failed, and there seems to have been only one obstacle each time. The Paleontological Resources Conservation Act introduced in 1983 was a fair proposal. Many people supported it, but a minority group of the Society of Vertebrate Paleontology (SVP) blocked its passage. The NAS study, resulting in the 1987 publication of *Paleontological Collecting*, was a concerted effort by nearly all interested parties to reach a consensus. The findings, published as recommendations reflect this consensus. (This included SVP representation.) A vote of the SVP membership supported all but one of the recommendations, but the "official" SVP minority position statement opposes the NAS findings.

The next step was Negotiated Rulemaking for BLM regulations. Representation from most national paleontology related societies (including SVP) and land managers worked under DOI directives using the NAS report as their guidelines. A consensus was reached but after draft regulations were distributed, the SVP minority position prevailed. Regulations were never published.

It has become obvious that the SVP "official" position does not reflect public opinion, nor even the opinion of its general membership. (I am a member.) The Baucus bill, S.-3107, is a prime example of the SVP "official" position. Most museum employees with whom I have spoken oppose this legislation, some categorically opposing this type of broad, unenforceable legislation. Even the American Association of Museums, referred to in the bill in defining "suitable institution", opposes S.-3107. Extreme legislation such as this is unnecessary to preserve paleontological remains. The longterm solution lies in the private sector, not in expanding governmental powers.

V. CONSERVATION AND PRESERVATION

Ethically, employees of the federal bureaucracy should not be involved in political campaigning to enact legislation to further their own careers. Academic scientists, as well should remain in their home arenas and "do science". After all, the public hires and pays these people wages to perform their respective duties detailed in job descriptions and elects politicians by popular vote to perform other duties.

The preservation and conservation of paleontological remains can be accomplished through the joint endeavors of public employees, employees of private business, and private citizens. The employees in the public sector must remember that the private sector is self-supporting, in addition to being the source of the tax revenues which support the public sector. Traditionally, private scientific ventures have been good supporters of "pure science" research projects. There is no reason why this can not be true for paleontology. The only way to preserve fossils for the future is to guarantee that they are collected.

Name: John Pojeta, Jr.

Affiliation: U.S. Geological Survey

I was very pleased with the philosophical tone set for the Northern Plains Governor's Conference by Governor Mickelson and Keith Ferrell, Editor, Omni Magazine--the need to work for consensus and to rise above emotion. This is also the philosophy that guided the National Academy of Sciences Committee on Guidelines for Paleontological Collecting.

I. PUBLIC AWARENESS AND EDUCATION--As noted by Governor Mickelson and Mr. Ferrell, there is tremendous public interest in paleontology, particularly dinosaurs. There is less awareness of other aspects of the study of fossils, and public confusion of archeology with paleontology appears regularly in all media forms. In the many forums I have attended on paleontological collecting since 1981, education and public awareness of fossils is always a topic of discussion. In the present forum, Mr. Ferrell made the point, "An educated public will serve as a de facto protective force on public lands..., if they know what they are protecting." Throughout the past dozen years, I have been a strong advocate of education rather than legislation about fossils. However, education takes time, and our society is noted for wanting things to happen quickly. Happily, over the past 12 years, many educational steps have been taken, which include both partnership opportunities and outreach programs: museums now hold more classes, land managing agencies have developed more exhibits, the commercial community has produced brochures and a code-of-ethics, the amateur community regularly invites researchers to their meetings and at the 1992 North American Paleontological Convention had special exhibits of the fossils they collect. The U.S. Geological Survey (USGS) has developed interagency partnerships with the Bureau of Land Management, National Park Service, and U.S. Forest Service through a memorandum of understanding (MOU) on the "Management of Fossils on Public Lands," which includes an interagency working group to resolve paleontological problems; also, the USGS now has a mandate to keep the National Paleontological Data Base. In addition, this agency has prepared teaching sets of fossils and a new brochure and poster about fossils. The Paleontological Society has produced several brochures, gives awards to the non-research community, includes information about that community in its newsletter, and attends their meetings. The educational initiative of the paleontological community is alive and well, but needs continuing fostering.

II. ECONOMIC DEVELOPMENT--The subheadings under this topic do not include the major economic use of fossils, which is extractive industry businesses that use sedimentary rocks. Sedimentary rocks commonly contain fossils. Such rocks are used by coal mining, building stone industries, fertilizer and agricultural limestone industries, zinc and lead mining, etc. Coal is essentially composed of fossils. Many buildings in

Name: John Pojeta, Jr.

Affiliation: U.S. Geological Survey

virtually any city are faced with stone containing fossils. Phosphates used in fertilizers commonly come from fossil-rich rocks. Any thoughts about Economic Development of fossils must extend beyond heritage travel and markets for fossil specimens.

III. PRIVATE LANDOWNER RIGHTS--In a society that respects private property rights, the major vehicle to use with land owners is education. At all times, fossil collectors need to inform land owners of what the collectors plan to do on the land. Land owners need to know what kinds of fossils are in the rocks on their land, what effort it takes to collect those fossils, to what uses the fossils will be put, and if the fossils have scientific or commercial value. The National Paleontological Data Base would be the logical place to store such information.

IV. PUBLIC LAND MANAGEMENT--As noted in my Plenary Session Presentation, I support the National Academy of Sciences Report on "Paleontological Collecting," as the basis for developing regulations by land managing agencies. The lawyers on the Academy committee saw no need to create additional legislation specific to fossils. The paleontological expertise needed to guide Federal land managers is already in the government. Permitting and regulations are the purviews of the land managers. Prohibiting general collecting of certain localities or low level taxa is reasonable. Blanket prohibitions of large areas, high level taxa, or formations are not reasonable. The cost of 'baseline surveys' makes these unreasonable as well. As research and discovery make new information available, additional localities can be added to the list where general collecting is prohibited. The National Paleontological Data Base would be the logical place to store information for all agencies; the data base already has information on 250,000 fossil localities.

V. CONSERVATION AND PRESERVATION--Scientific considerations can be handled by the interagency committee created by the MOU on "Management of Fossils on Public Lands." The fossil locality register can be part of the National Paleontological Data Base.

I. Public Awareness and Education.

Each state should have a qualified paleontologist to act as a facilitator between agencies, professionals, public. He/she should issue news releases to public to heighten public awareness. They should publish a list of field opportunities for amateur and professional diggers.

II. Economic Development

III. Private Landowner Rights

At the time of sale or transport on public roads, all fossil specimens should be accompanied with the information on the location found (both geographical and geological), type of specimen. The name or names of the responsible government agency be it federal or state or the landowners in the case of private land

IV. Public Land Management

V. Conservation and Preservation

If possible all fossils should be kept near the areas where found if an appropriate repository is available. Whether for tourist or scientific study this should provide an economic boost for the local economies. It would also seem that research could be enhanced by being close to the original site of the fossils

Name: Jon Kramer A.A.P.S.
Affiliation: American Association of
Paleontological Suppliers

Public Awareness / Education-- The AAPS has always directly supported public awareness and education. We award two scholarships annually for the study of paleontology. The AAPS fosters ties with amateur and professional organizations by sending representatives to their annual meetings. The AAPS believes that public awareness of paleontology is best promoted by encouraging the collecting of fossils by anyone who desires to do so.

Economic Development-- Marketing of fossils is nothing new. It's been done in Europe for thousands of years! Even in this country, the "fossil business" has existed for hundreds of years. Thomas Jefferson purchased fossils. A hundred years later, Charles Sternberg and his sons made their living solely on fossil collecting. History has shown that free enterprise does a better job promoting paleontology than the most well intentioned governments. The goal of the AAPS is to promote paleontology through fossil trade.

Private Landowner Rights-- The AAPS believes that private landowners have the right to dispose of their fossil resources as they see fit. AAPS members get landowner permission before they dig. Members are encouraged to maintain close contact with landowners, keeping them appraised of any finds, and compensating them fairly.

Public Land Management-- Public lands should be open to anyone who wishes to collect fossils. The AAPS agrees that permits are needed for extensive excavations, just as they are for mining and quarrying. The AAPS fully supports the NAS recommendations on Paleontological Collecting (1987) and encourages their implementation. AAPS strongly opposes Senate Bill 3107, and calls for its removal! This bill is exclusive, and possibly unconstitutional. If made law, this bill would adversely affect all concerned parties and be a detriment to the science of paleontology. We propose a new bill be drafted with equal representation by all concerned parties.

Conservation & Preservation-- The AAPS membership feels the science of paleontology is first. Scientific consideration is paramount. We assist academic paleontologist with information and free specimens (needed for their research) through our "Adopt a Paleontologist" program. AAPS encourages its members to regularly donate specimens to scientists and institutions to help further the study of paleontology. Recently, AAPS has instituted an internal education program to keep its members informed to scientific technique and documentation.

Name: Kathleen Heaney

Affiliation: Potomac Museum Group

Awareness / Education: Potomac Museum Group (PMG) belongs to the American Association of Paleontological Suppliers (AAPS). We work with many local schools to give programs, and to invite students to our lab. We are a internship site for university & college geology programs, and currently have an intern from Macalaster College. We work closely with the Science Museum of Minnesota's Educational Outreach program, providing them with both specimens and consultation. In fact, the Educational Outreach people have told us that it's much easier for them to obtain samples from us than from their parent institution! Public awareness & education are primary goals for PMG. We give public talks and adult ed. classes. We help people learn about earth history, fossils, and the difference between archeology & paleontology. Art can be found many places like private collections, building lobbies & offices, even on the street! Why not the same for fossils? Why should all fossils be held captive within the hallowed and often empty halls of museum collections where often only a few privileged individuals can go? I know that some museums have many specimens the public never sees, and I've heard of the massive collections and unopened field jackets gathering dust in the Smithsonian Institution basement. How much is enough? Not everyone in this country can go to a museum. Disseminate fossils for all to appreciate and enjoy!

Economic Dev.: PMG has been offered large sums of money more than once for outstanding fossil specimens. We have refused these offers because those specimens were of unique scientific value. These specimens were donated to public museums for study. I was very concerned with Jason Lillegraven's libelous transparency which attributed many negative characteristics to all commercial collectors. He would have one believe that all commercial fossil dealers are money grubbing, unethical bandits. I wonder how he would feel if I stereotyped all academic paleontologists as domineering, self-serving fossil hoarders? The truth is that many commercial collectors are more concerned with science, than with "making a buck". At the hearing for the T-Rex, "Sue," Bob Bakker, PhD, said that the Black Hills Institute of Geology shared more with the scientific community than any other public institution in 100 years! We want to continue to build bridges with the scientific community.

Private Land: As members of the AAPS, we collect only with the landowners permission. We have good working relationships with these landowners, and they appreciate making some money off land that would otherwise lie fallow.

Name: Kathleen Heaney

Affiliation: Potomac Museum Group

Public Land Mgmt.: John Pojeta pointed out the NAS Guidelines written in 1987 define positive strategies for dealing with commercial / scientific interests. Unfortunately, the executive committee (13 people), not the entire membership of the Society of Vertebrate Paleontology, rejected those Guidelines. So, here we are again trying to re-do what has already been done. Pat Leiggi's unilateral speech proselytizing Senate Bill 3107 would have one think that his way is the only way. It seems that a select few individuals are trying to dictate what they see is best for everyone. I ask whoever reads this to be alert to the innuendoes and propaganda-like rhetoric which comes from those individuals pushing for #3107. They would have us believe that there is a "holy war" of sorts-- that they (the wise & righteous) must protect our fossil resources from them (the immoral & bad). Beware of this dualism. Remember that most fossils are found by amateurs & many collections found in our museums were donated. Remember that museums are also commercial dealers, they sell fossils too! (In the late 1960's the American Museum of Natural History sold the skeleton of the type *Dynamosaurus imperiosus* (AMNH 5866- synonymized with *Tyrannosaurus rex*) to the British Museum of Natural History in London, England.

Conservation: Finally, it comes down to the issue of control & ownership. Who should control fossil resources? How can we prevent a "power elite" monopoly of those resources? At this time of relaxed international trade barriers, why shouldn't we share fossils with the rest of the world? Those life forms preserved existed without today's political boundaries. Remember what Keith Ferrell of OMNI magazine said at the beginning of the conference: fossils elicit a magic to all that touch them. They are our connection to the past. The right to touch, dig, and collect fossils must be allowed to all. We promote the idea of compromise and balance. The commercial collector should be allowed to continue their work with the supervision and guidance from the scientific community. The scientific community needs reach out and share more with other non-scientists, as we share this planet together.

Name: Clayton Black

Affiliation: Potomac Museum Group

Because of the lack of allotted space being provided for commentary, I would like to specifically address the topic of conservation and preservation of fossil resources on public lands (Topic Area V), as outlined in the conference agenda, as well as the conduct of the conference. Although it need not have been, this conference seems to have been drawn along the self-imposed and unnecessary boundaries of "Academic Paleontologists" and "Commercial Collectors," each "side" claiming to represent the interests of amateurs and land managers. Surely our most noble desires and motivations are much the same. Conservation and preservation are areas where cooperation between so-called "factions," as well as the vast number of amateur collectors, would not only provide cumulative benefits to paleontology as a whole, but, most likely, would provide some benefits of exponential proportions.

It would be good to identify some of the common goals and aspirations, as I have understood them, at this point. We all aspire, I hope, to advance the science of Paleontology and those sciences contingent to it, Geology, Biology, Evolutionary Theory, etcetera. We also seek to educate children and adults alike, so that we all may better understand the world we live in and our place in it. This knowledge is not just for a privileged few to hoard, but rather is a human trust that should know no boundaries. Conservation and preservation of these fossil resources are the first steps to reaching these goals.

At this point I would have liked to address the points brought up by the topic speaker in this area, Jason Lillegraven (pardon me if I have left off some academic status, MS or PhD, but none was listed in the agenda). However, as can be seen by examining his speech, which I understand will be published in these proceedings, he has really barely touched on the real concerns of conservation and preservation, and, unfortunately, for the purposes of this conference, merely delivered a factional tirade of outrageous stereotypes and prejudices. Hopefully, the future will hold more understanding on both "sides." Therefore I must address myself directly to the points in the agenda, as vague and inconclusive as they are.

Topic V: Conservation and Preservation

1: Scientific Considerations

A: Ethical Academic Issues - I am uncertain what the intended issues are, but those I find most pressing are those of academic sharing, education, free access, fair debate and argumentation, as well as a sense of selflessness, in which science and education come before one's personal gain or glory. Seeing that as many fossils as can properly be preserved are collected should be the goal of academics and paleontology as a whole. These goals would be best achieved by a cooperative effort, involving amateurs, academics, commercial collectors and land managers. Vertebrate fossil beds on public lands are too extensive for academic institutions alone to preserve. Catalogs of hundreds of vertebrate specimens on national and state Badlands property in South Dakota, weathered beyond collectability, give testament to the need for more pro-active work in the field of conservation/preservation.

B: Scientific Documentation - We all agree that science must be served first if all of our other goals are to follow suit. Therefore, documentation of sites and specimens are a must. It is granted that amateurs and commercial collectors are often not

Name: Clayton Black

Affiliation: Potomac Museum Group

properly educated in these areas, however this should not be looked upon as an immovable barrier to cooperation and progress. The Denver Museum of Natural History Amateur Accreditation program is a good initial step and can serve as an example of future dialogue and education, so that standards of documentation can be achieved.

2: Basis for Accurate Interpretation and Education -

Amateurs, commercial collectors and academics alike, all serve to educate the young in our schools. The organization that I represented at this conference gives school talks to hundreds of children per year, and we are working towards thousands in coming years. We provide a hands on experience that will hopefully inspire some future geologists and paleontologists. We are but one of many such groups. Accurate interpretation and education depend on seeing that there is accurate knowledge shared by and dialogue between the groups disseminating information.

3: Fossil Locale Registry

A: Mandated on State and Federal Lands - A registry of fossil locales on public land is an excellent idea. Environmental impact, extensiveness of fossil beds, rarity of fossil specimens, scientific importance and plans for conservation/preservation of sites are all areas of great value and would hopefully be included in such registry assessments. However these goals would be nearly impossible to attain under current systems of management. This is yet another argument for cooperation and education at all levels. Properly regulated, but unrestricted access to all but the more sensitive public lands is in the best interest of Paleontology, as per the NAS report.

B: Voluntary on Private Lands - This seems like a useful idea, as the decision remains in the landowners' hands, and also makes known and available sites which may be of scientific importance, as per the North Dakota Wilderness Areas Registry.

4: Regional Repositories - Repositories of specimens of scientific value from public lands are most definitely necessary, however the term "regional" suggests hoarding and localism, which are antithetical to scientific sharing and fair debate. Regional registries and regional clearinghouses for specimen sharing seem a good combination, although it is beneficial for certain repositories to have specialties or extensive collections from certain sites, it is best to prevent cases of hoarding. However, museums, universities and other repositories do not have the ability to curate every common fossil occurrence that happens to be found on public lands. This is where commerce can come into play. Properly educated and accountable collectors, amateur and commercial, could make common specimens available to institutions and individuals throughout the world, thus disseminating specimens and knowledge, as well as preserving the specimens and the scientific data that might have been lost to erosion or improper development otherwise. They could also provide this service with a minimal use of public tax monies.

I know there have been disagreements about commercial collecting on public lands. These stem mostly from misunderstandings on the parts of all parties involved in the dispute. Unfortunately this conference did little to close the gap, although I was interested to meet several public officials and others, who knew little about the dispute and were more interested in furthering science than in factional fighting. Hopefully the future holds better prospects.

I. Public Awareness and Education.

1) Any buildings, headquarters etc open to the public should be an opportunity to display and interpret local geological history along with the other natural history of the area. This might include display of real local fossils or good reproductions. It should also be an opportunity to impress on the public that fossils belong to the people and it is to their advantage to protect them. 2)A),B),C) It goes without saying that all governmental agencies should cooperate with each other in developing sites and material for interpretation and public education. D),E), The fine program of the Forest Service, already in place for Archaeological Sites (Passport in Time:) should be expanded to include paleontological sites as well. This would mean more paleontologist would be needed by the Forest Service and/or other agencies to give proper direction for amateur involvement. For profit groups could do contract work for the agency to recover endangered specimens, providing title to fossil remains with public and funds are available for such work, but normally volunteers should be utilized whenever possible. 3). Outreach programs that involve young people provide the best guarantee for the future. Not only in preserving fossils but more importantly stimulating the best in our young people, to, educationally speaking, give them a boost up the ladder. The greatest opportunity for present protection of our fossils lies with the involvement of the public in the management of our fossil resources. Through programs like PIT, training in recognition, proper excavation and documentation show why we don't just rip bones out of the ground. Local museums and schools would play the most vital role, but other groups such as Scouts, 4-H clubs, Extension clubs etc. could also be involved.

II. Economic Development

Perhaps the best way to help economic development is to interpret, and display the fossils in local museums as close to the original fossil site as is feasible. If the local sites are undesirable because of security or other factors, assistance could be offered to help upgrade the facility. In any case good reproductions of the fossil and copies of the documentation should be available in the local area of the find. Even if it has to be displayed at the local Chamber office or some such place. That is what brings in customers to the local gas stations, cafes, motels etc. A near by regional facility that has proper facilities should have preference if the fossil cannot be displayed locally. They in turn should be encouraged to rotate exhibits for display in small communities for the edification of local people who might not have the opportunity to visit the larger institutions. I do not see any particular value for the people as a whole in the sale of fossils. In fact putting \$ values on fossils can open a Pandora's box for not only the public, but private landowners, public land managers, museums and public educational institutions.

III. Private Landowner Rights.

I personally believe landowners should be encouraged to demand that anyone entering on private land and not personally accompanied by the landowner should carry a written permission slip from the landowner for what ever purpose they are there and that it should include release from liability in a case of accident.

IV. Public Land Management

Clarification of the legal issues is needed. Are fossils considered as historic, minerals, gravel, surface or what? Can we have more teeth in trespass laws? Can we (private landowners, law enforcement etc.) have a way of finding out from public agencies if they have people working in the area and what they are doing. I do not favor the NAS recommendations for management of fossils on public land. I do favor Senate Bill 3107.

V. Conservation and Preservation

I feel that in the interest of protecting the fossils it is best if only one group is working in a given area. Even academics can get competitive. In certain complex problems perhaps a group approach would be better. Areas of responsibility should be clearly defined in this case. Most certainly the highest standards of Scientific documentation should be demanded of any group collecting on public lands and this documentation should be done on a timely basis. This certainly should not rule out school children. What better way and what better time to teach them the correct way of doing things than how scientist document their discoveries. Public Institutions that have a time tested history in the field of fossils and geology should judge the accuracy of Interpretation and education.

A Registry of fossil locations on both State and Federal Lands and voluntary registry of sites on private land is most desirable. I would also like to see a catalogue of fossils in public museums included in that registry. This should be an invaluable tool for researchers. A similar catalogue on a voluntary basis from private museums could also go in the registry. Development of Regional facilities should be encouraged and they in turn should lend their expertise to smaller and more local institutions.

I would personally like to thank the Forest Service, particularly the Nebraska National Forest for initiating this conference. There is much to be done if we are to be proper stewards of our fossils and through them learn all we can of not only our geological past, but the natural history of our planet.

Name: David Anderson

Affiliation: Dakota Fossils

I would like to comment on remarks made the first day of the Fossils for the Future conference. A number of panelists described fossils of the future as a nonrenewable resource. I disagree. As long as sediments are exposed, fossils will be found weathering away. Let us take into consideration the amount of time it will take to weather these sediments. Will it be 10, 50 or 100 thousand years? As sediments weather what will happen to eroding fossils if not collected? What will be done with the fossils collected in the future compared with the vast collections collected in the past century?

Most fossils are quite common, once a person understands where they are located in the geologic strata. A great many of the fossils found are of no scientific importance. That can be proven by our local museum staff and how they respond to local finds brought to their attention by amateur collectors. For example, an amateur collector contacted our local university museum, which has a paleontology department, about a partially articulated skeleton weathering out of some badlands. The curator went to look at the specimen. He identified it as a Triceratops skeleton and stated that it was of no importance to the museum. The specimen was later discovered to be a T-Rex. It is now being prepared privately and will be on exhibit at a local museum.

I have been informed recently that various public museums have been pulling some of their displays to make room for dinosaur displays. Their answer to this is "dinosaurs are more popular at this time." It seems to me that some public museums are more interested in exhibiting the greatest attractions rather than educating the people on how fossils have evolved from the past to the present.

Private enterprise is one of the ways to fill in the gaps of what museums can not or will not do. The burden should not be placed on the taxpayer if other organizations are willing to step in.

Industry has been able to profit from public lands. Mining continues of nonrenewable resources such as oil, coal, gold and other precious minerals. This will be allowed until all resources are depleted or until there is no market. Our government condones this. Yet they want to forbid us from collecting fossils, which weather slowly and are a renewable resource.

Name: Alvin Albrecht

Affiliation: Vice President, R. C. Common Council
Member, Western Dakota Gem & Mineral
Society

September 26, 1992

U.S. Dept. of Agriculture
Nebraska National Forest Service
270 Pine Street
Chadron, NE 69337

Ladies and Gentlemen:

Putting the collecting of fossils in the hands of the government and paleontologists is the most wasteful thing you can do. They do not have the time, man power, or money to collect and save all specimens that erode out. Depending on the soil, it takes from two to five years to be lost to the elements.

It is much better to be collected by anyone than to let it be lost!

Collectors and dealers help to fill museums all over the world. In turn, we gain knowledge by buying from foreign countries. Without this open collecting, we will have lost the building of museums to only a closed and select few.

Your fear of raising prices of fossils is unfounded. Dealers must do quality work in a timely manner, which is lost when working on the tax dollar under government control, which is not done in a true business manner.

Why do you people who are paid by the tax dollar insist on trying to turn our government into a dictatorial power? Come on and wake up to the fact that this is still the United States with a Constitution for all the people and not for just a privileged few.

Name: Donna J. Engard, Patricia E. Monaco,
amateurs and volunteers in paleontology
Affiliation: Garden Park Paleontology Society
(501(c)(3) non-profit working with BLM in Canon City, CO

re: Public Awareness and Education (I)
2) D) Academic, Amateur

We welcomed the opportunity to take part in the Northern Plain's Governor's Conference and were saddened that the full agenda could not be completed. We need a very open dialogue among all the parties to solve the very critical problems of paleontology today. We see none of the threats to amateur participation in paleontology that have been played up in the press, in fact, we see the opposite. There are official programs now where volunteers can be involved very deeply with paleontology responsibly. The only decision an amateur need make is in level of involvement. Amateurs still have a great deal of freedom as far as collecting in paleontology but need to remember that this freedom carries with it even greater responsibilities in connection with fossil resources which are non-renewable. When amateurs get involved with the science of paleontology rather than just the collection of fossils for personal use, it becomes even more obvious how important a resource fossils are in terms of scientific information. As an example of how involved amateurs can be we would like to give examples from our involvement.

As certified amateurs we have truly unlimited opportunities to volunteer for paleontology. Having both graduated from the Paleontology Certification Program at the Denver Museum of Natural History in 1991 we continue to volunteer for the museum in the fossil preparation laboratory as well as field work. The certification does not make any amateur a professional paleontologist, but a para-professional to whom the legalities, ethics and responsibilities of the science are very clear. Additionally, we also volunteer for the University of Colorado and have done field as well as preparatory work for Dr. Peter Robinson. This work has led to our appointment as Museum Associates and to inclusion on paleontology permits in order to monitor sites in our area of residence for the University. Pat is also a member of Western Interior Paleontology Society which is now developing a permitted relationship with the BLM to help in survey and salvage work for the agency.

(continued)

Name: Donna J. Engard, Patricia E. Monaco

Affiliation: Garden Park Paleontology Society

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Our longest standing paleontology commitment in addition to those previously listed, is with the BLM in Canon City, Colorado. Since 1988 we have been part of the Garden Park Paleontology Society as elected officers. We have been working with the BLM to protect the Garden Park Fossil Area through "Public Education and Scientific Research" as part of our ethics statement. All our members sign an ethics statement and recognize the importance of developing a responsible involvement with the science of paleontology. The Society is working with the BLM to plan and build a major educational and research facility in the fossil area. We have a partnership with the Denver Museum of Natural History Department of Earth Sciences for professional technical assistance as well as a thirteen member Scientific Advisory Group made up of paleontologists from around the country.

In short, at least on the Colorado Front Range, endless opportunities exist for the amateur paleontology enthusiast to get involved with the science of paleontology. True, it takes time to get the training to work with scientists, but it is very satisfying to contribute through volunteering. There are levels of involvement which do not take unusual commitments such as with WIPS and the BLM as well as the Denver Museum of Natural History. All of these use non-certified but still capable and interested volunteers. As our own society continues to grow we hope to be able to offer our own training program to interested citizens locally. We already have an enthusiastic Junior group of 5th and 6th graders who worked with teachers to develop a coloring book on the dinosaurs from the Garden Park Fossil Area. Despite levels of training in paleontology that amateurs choose to have, there are many ways they can be involved responsibly with the science and make valuable contributions to it. Despite what has been portrayed in the press, amateur involvement in paleontology has never been more available on even higher and more responsible levels than ever before and is welcomed by all in the science.

Name: Hannan E. LaGarry-Guyon

Affiliation: Univ. Nebraska State Museum

During 1991 the USDA Forest Service requested that the University of Nebraska State Museum (Challenge Cost-Share Agreement #02-07-91-013) assess the condition of fossil resources on the Oglala National Grassland in the vicinity of tourist-accessible Toadstool Park (Sioux County, Nebraska). The fossil-bearing bedrock in this area is primarily the White River Group (Chadron and Brule Formations), which yields vertebrate fossils that are easily collected and marketed. These rocks are late Eocene and Oligocene in age, and in the Toadstool Park region comprise the lithostratigraphic and biostratigraphic standards for the White River Group outside Badlands National Monument. This work was continued in 1992.

The results of these inventory surveys are the first quantitative estimate of the impact of illegal collecting of fossil vertebrates on federal lands, and are therefore relevant to many public land management issues to have been addressed at the Governors' Conference on Fossils For The Future.

IV. PUBLIC LAND MANAGEMENT

2) Permitting and Enforcement

The current system of permitting use of USDA Forest Service lands (Special Use Permits) allows land managers to monitor and control legal access to federal lands. During our survey work, we (the University of Nebraska State Museum) had the only permit allowing excavation issued for the Oglala National Grasslands. Any excavation not done by us, therefore, was done illegally. Should there have been other active permits, we could have contacted the permit holder(s) to obtain information on where and when excavations were made. The distinction between legally and illegally conducted excavations would have been impossible without the permitting process.

In addition, USDA Special Use Permits are very restrictive with regards to allowed activities. The permits are designed to reduce or eliminate direct and incidental damage to fragile ecosystems present on federal lands. Because permits (and therefore access) can be revoked and financial penalties levied if the permit's restrictions are not met, permits provide accountability should federal lands be damaged. Providing open access to unpermitted individuals would result in increased traffic on federal lands with no means of providing accountability for damage to ecosystems as well as unrestricted loss of fossils in the public trust.

A) Surveillance and Monitoring of Sensitive Areas

During our 1991-1992 surveys, 48 mi² (30,720 acres) of the Oglala National Grassland were surveyed. During the 1991 survey, approximately 20% of the land surface surveyed showed

Name: Hannan E. LaGarry-Guyon

Affiliation: Univ. Nebraska State Museum

physical evidence of illegal vertebrate fossil collecting. Although important fossil material weathers from the rock throughout the area surveyed, we designated some areas as having special importance because of their exceptional preservation of fossils (Sensitive Areas). Of the Sensitive Areas we identified, 28% showed evidence of illegal collecting.

Although White River Group rocks in the surveyed area are normally very fossiliferous, relatively few fossils were observed during our survey. The Chadron Formation is most heavily impacted by illegal collecting, although numerous violations also were observed in the Brule Formation. This situation is in part the result of the topographic expression of the Chadron Formation which weathers as low hummocks and is accessible to vehicles, whereas the Brule Formation forms steep, relatively inaccessible cliffs. We observed, in addition to the daily unauthorized removal of fossils from Toadstool Park, three occasions where individuals in vehicles left the vicinity upon observing our survey team. These observations indicate that the illegal collecting of fossil vertebrates in this region warrants increased law enforcement attention. At the conclusion of our March 1992 report to the USDA Forest Service we offered several recommendations that support this effort, including 1) additional surveys to define areas of special sensitivity, allowing more efficient use of law enforcement time, money, and personnel; 2) an increased law enforcement presence on the Oglalla National Grasslands; and 3) stiffer penalties to serve as a deterrent to illegal activities.

3) Funding

A) Baseline Data Gathering Survey Costs

The total cost of our survey of the Oglalla National Grasslands, including 1) detailed geologic mapping of fossil-bearing rock units; 2) detailed documentation and salvage of jeopardized fossil specimens; 3) identification and documentation of areas of special sensitivity; 4) detailed documentation of evidence of illegal fossil collecting; and 5) a report containing detailed maps and descriptions of the paleontological resources of the areas surveyed, was \$0.43/acre. The area we surveyed is viewed by the paleontological and geological communities as a valuable scientific resource. Areas not having such significance might cost less to survey.

Name: Japheth B. Boyce

~~Affiliation: American Assoc. of Paleo. Suppliers~~

Fossil wars are dirty wars, much like ~~terrorist warfare~~ in Eastern Europe with no regard for the rules of the Geneva Convention.

I 1) Warfare over traditional public land use versus avante-garde land use is raging all across the United States today. At issue is whose opinions on land use shall prevail and who shall make the decisions that reflect those opinions. The polarization was so great at the Governor's Conference that any neutral person was quickly pulled apart by the di-poled armies. The flags being waved by the two camps are the 1987 NAS report and the 1992 Senate Bill 3107. (Which is a shame because it was a conference hosted by state governments and attended, for the most part, by state officials.) The differences are tremendous. The NAS report is not written as a Bill because its recommendations can be enacted as regulations by agencies as the BLM, NPS, USFS and others immediately. The Senate Bill S3107 however, will take much time and expense to become usable. The Baucus Bill restricts rights by stopping the permitting of commercial collecting on Forest Service land. The NAS report allows this to continue. The NAS report's ten recommendations were approved by many groups; most notably the Society of Vertebrate Paleontology who approved nine of the ten parts (#7 being the exception; see SVP Bulletin February, 1989). Only an extreme minority of the SVP approve of the Baucus Bill and few groups and agencies see it as usable.

I 2) C, E Natural History museums and University Geology Departments need the private sector to fuel them with specimens and funds because of the lack of government support. The shortage of money is evidenced by the sale of fossils by many regional museums during the last twenty years such as The Museum of the Rockies, The Denver Museum of Natural History, and South Dakota School of Mines. The financial future becomes even more bleak when the 800, or so, selected elite are charged with harvesting the fossils from the nation's 400 million acres of public land. Fossils erode away, Paleontologists are strained, science suffers and the public is poorer when suggestions such as the Baucus Bill are implemented. (The six members of my family find it difficult to manage the one thousand acres of our fossil localities on the family ranch; a much smaller ratio.)

II 1) C
III 1) A
2)
3)
IV 1) A
2)
3)

Philosophically, (politics and economics aside) there is no difference between a commercial cement operation mining the limestone on Federal land around Rapid City, SD and a commercial paleontological operation

-continued-

(2)

Name: Japheth B. Boyce

Affiliation: American Assoc. of Paleo. Suppliers

II 2) A, B in the same quarry. One grinds the Permian fish into cement and sells
V 1) A the fossils for financial gain and to aid society's construction; the
2) other collects the specimens intact and sells them for financial gain
3) and to aid society's science and education. (If the sale of fossils from
IV 1) A federal land is indeed illegal then many Museums, Universities, coal
2) A, B mines, and rock quarries are in violation of the law and need to be
prosecuted.)

IV 1), 2), 3) We have working commercial collecting laws now on a state level in
I 2) A, B places as Florida, South Carolina and Wyoming. These state laws prove
that fossil are saved, science flourishes and an economic use of public
land prevails. We should be examining how these systems work and
translate them to a national level.

IV 1) A, B Anecdotal accounts of commercial collectors poaching from federal
2) land and poor techniques used on private land are exceptions. Just as
Museums and Universities that loose field notes, drop and destroy
specimens, and collect on private land without permission are
exceptions. You can prove anything through example. However, gratuitous
disregard for specimens and the information they hold is the crime most
people abhor.

IV 1) A, B I would suggest individuals notify "suitable institutions" (Baucus
2) speak) of specimens found on public land. Also, invite them to join you
in the collection of specimens on private land. This will measure their
sincerity of scientific integrity and their thechnical accumen. If
III 1) A reported specimens go uncollected and erode away; or data from existing
2) sites ignored obviously, perserving fossils and furthering science is
3) not at the heart of these institutions.

I 2) O, E Dr. T. Sowell said it well in FORBES, "People are never more sincere
3) A, B than when they assume their own superiority. Nor are they ever more
ruthless. J.A. Schumpter said that the first thing a man will do for
his ideals is lie.

Disingenuous words, twisted statistics and misleading lables are all
part of the dirty war over cultural values. Cultural wars are so
desperate because they are not about the merits or demerits of
particular policies. They are about the annoited's whole conception of
themselves-about whether they are in the heady role of a vanguard or in
the pathetic role of the pretentious and silly people, infatuated with
themselves."

Collecting a fossil does not mean that that area has been permanently cleared of fossils. Year after year more fossils come to the surface through erosion. Fossils should not be left in the field to erode away just because so many have been collected by museums that they no longer have any scientific value. Unless collected, after a few short months, or years in some instances, they are totally worthless. At this point, do they have any value, either scientific or for enjoyment?

Science in itself is not the only excuse for the collection of fossils. Many are things of beauty and interest and should be available for anyone to enjoy. In my opinion, the vast majority of visitors to museums are interested in seeing the specimens on display and have no interest whatsoever in the scientific data derived from untold hours of study and speculation.

With regard to Jason Lillegraven's comment that a fossil collected without all the pertinent data to go with it is of no value for anything except to put on the mantle; I would like to point out that we and most likely most other commercial fossil dealers have sold specimens in Denver and Tucson to paleontologists for their own personal collections. I feel that it is highly misleading for the academic and professional (museum funded) paleontologists to imply that all fossils should belong to the public when many of their own members have their own private collections.

All of us are surely aware that all museums have vast warehouses of unprepared fossils, many of which have been stored for many years. The position of the academic paleontologist is that fossils should be enjoyed by all people and not in private collections to be enjoyed by only a select few. Who is enjoying those fossils still in their jackets and stored in the depths of a warehouse? Those fossils in private collections would not be left unprepared and would be enjoyed. Many people are first acquainted with fossils through private collections and Gem and Mineral Shows. A good Gem and Mineral Show will spark more new interest in fossils than museums could ever think of doing.

Is there anything in museums, with the exception of artifacts, that cannot be owned by private individuals? Are you implying that anything worthy of being in a museum should not be available for private ownership? Museums have many beautiful invertebrate fossils, mineral specimens and rocks. Will they be next on the agenda to outlaw?

Mary Peterson stated on KOTA News on August 20, 1992 that "they are stealing these "artifacts". Fossils are not artifacts! She also said, regarding the Oglalla Grasslands: It looks like they have been out there with heavy equipment - it looks like they might have been digging up dinosaurs. It is impossible to believe that there would be a commercial or amateur collector that would be stupid enough to think that one could dig up a dinosaur with a backhoe or D-9 Cat.

Terri Liestman claims that she understands that fossils are even being ground up into aphrodesiacs. By whom?

This country operates on a free enterprise system. The value of sales turned over approximately seven times in a state like South Dakota is a very large amount. Every time this money is turned over it generates more taxes for the federal, state, and local governments. However, the proposals brought forth at this conference and in S. 3107 will only require that more tax money be spent instead of collected.

It appears to be a contradiction for the academic paleontologist to say that fossils are priceless and then complain about the high prices for fossils. You can't have it both ways.

Public land claims are made for minerals (gold, silver, oil, etc.). They most certainly are not renewable resources. Why not for fossils? Why can't public lands be leased by both the federal and state governments for the collection of fossils? Then the governments could be collecting money instead of spending it.

Maybe what we need is some Anti-legislation. Why not make it illegal to leave fossils in the ground to erode when they could generate income for the individual, state, and federal governments?

One of the points of contention seems to be that many fossils are being sold overseas. In our small way, the commercial fossil dealers are helping this country with its trade deficit. Many fossils are being sold to Japan and to Germany and other countries; but many of their products are being sold here.

Many inventions and important finds have been made by those without advanced degrees in their fields of expertise. What degrees did Thomas Edison hold. More closely related to this field are Willard L. Roberts and John Sinkankas whose books are used in universities to teach mineralogy. Mr. Roberts also discovered and named many minerals. To discredit him because he did not have any degree is unthinkable.

In Jack Horner's book "Digging Dinosaurs" he states that the dinosaur nest he found was originally found by an amateur rockhound who led him to the site. Bob Bakker says "we need all they eyes we can get out there". Anyone who is willing to think about it will have to realize that there are far more square miles of potential fossil rich country in this country than can possibly be covered by the paleontologist and museums in this country. We as commercial fossil collectors are willing to work with the schools and museums; but we don't want to be totally excluded and treated as the scum of the earth as was so often implied at the conference.

We will work with the paleontologists on any item of interest. We have given items to the School of Mines Museum in the past. We donated a Camel jaw found near Delmont - where is it - where is the documentation? How many museum's collections were originally private collections? Have these museums turned down collections because there wasn't proper documentation? It is an extremely elitist position to think that amateurs and commercial collectors are not fit to collect and prepare fossils.

The salaries of Forest Service personnel, federal and state paleontologists, etc. are paid by the taxpayer and therefore they should be the servants of all the people. Our government is supposed to be a democracy, not a socialist government where everything of value is owned by the government. As Abraham Lincoln said in the Gettysburg address "of the people, by the people, and for the people".

I am a commercial fossil dealer who deals in invertebrate fossils. I am concerned about the run-away beaurocracy and the costs to maintain it in this country.

Bonnie Plooster, Elk Creek Fossils, HC 80 - Box 720-50, Piedmont, SD 57769

Name: HAL HALVORSON

Affiliation: POTOMAC MUSEUM GROUP

I 1) PUBLIC AWARENESS AND EDUCATION; INTERPRETATION

OPPORTUNITIES AND CHALLENGES. In my view the public in general knows far too little when it comes to paleontology. even some of our elected officials invited and or attending this conference did not know the difference between Archeology and paleontology. How anyone can make good legislation with this little UNDERSTANDING OF the subject is gambling with our freedom. our challenge is to educate the public on at least these basics and assume that the majority will not get to see our museums. this is when outreach programs are needed.

I 2) PARTNERSHIP OPPORTUNITIES. Academic funds in museums and colleges are dwindling. The sooner the academic and private/commercial groups start cooperating, the more fossil treasures we all can save from erosion for the good of our children. If all of us collect what is being DESTROYED on the surface and learn how to do it properly using proper guidelines and field techniques, and making sure rare fossils are made available for study, museums, universities and the public can only benefit from the tremendous increase in resources.

I 2) C) PUBLIC/PRIVATE Does I 2) c) mean public/private land, AND owners?? This outline is not clear enough! You will drive a wedge between private and government if senate bill 3107 is passed.

I 2) D) ACADEMIC/AMATEUR

I 3) A) 1 AND 2 Academic and armature relations can be vastly improved by museums and universities contacting clubs and working with them. Teach them proper collecting techniques also. They may be collecting on private land, but if they come across something worthy of being of interest to a museum, would it not be nice to have good information with the specimen? What if you need to use these people on federal land? They will already be trained.

I 4) A) ACADEMIC EDUCATION. Why is there not a heading in this outline for academic education? Or, for that matter commercial collecting education. The If the academic side knew everything that the amateur side knew, this whole conference could have been avoided. Many (if not most) academic people hear mostly second hand poaching stories which does not apply to law abiding citizens (even though its popular for academia to classify all commercial collectors as poachers). Most of these academic people have come to the conference to hear both sides of the story and yet you neglect to provide for their awareness and education!

I 4) B) COMMERCIAL COLLECTING EDUCATION. The commercial collectors could have also used this heading. This is more evidence showing that the commercial collectors were ignored and never consulted during the outline of the **AGENDA TOPICS** for this "open public forum". Instead for trying to exclude the commercial collectors from collecting on public land, there should be education on how to collect properly on the basis of science so the science can advance. There should not be exclusion of education when there is a conflict of interest which has happened in the past.. Keep in mind that the commercial collectors have valuable collecting techniques to share as well.

II 1) C RESPONSIBLE MARKETING OF LIMITED RESOURCES This is a very important point. Marketing takes place in whatever we do whether you are a museum in Chicago or a rock shop in North Dakota. If museums do not market their recourses, money to run museums will dry up and attendences will dwindle. Museums are often willing to sell a more common fossil that that may be common to that museum. In the same token, they may need to buy a fossil they don't have from another museum, or from a commercial collector. Weather you are a museum or a commercial collector, your work does not come for free. Every preparator has

Name: HAL HALVORSON

Affiliation: POTOMAC MUSEUM GROUP

to invest time into recovering an almost lost fossil to erosion. Responsible marketing ensures that a fossil is not sold solely on the basis of unreasonable money one can obtain from a fossil, but more importantly what is necessary to make sure the price is reasonable and does go to a responsible cause. Selling a mounted dinosaur for 300,000 sounds like a lot of money, but when you divide 15,000 hours of labor into that, plus field expenses and supplies, lab expenses and supplies, this 300,000 dollar dinosaur is a reasonably priced dinosaur. Find a museum that can do this cheaper.

II 2) SHORT TERM OPPORTUNITIES What on earth do you mean by short term opportunities? 10, 100, 1000, 10,000,000 years? I'll tell you what is a short term opportunity. The thousands of turtles and oreodonts that are destroyed and scattered each year by wind, rain, and freezing temperatures in the bad lands every year!!! In the bad lands, we are talking about weeks, not years to lose a fossil to the elements. Gone forever, never to be even seen by people even 10 years from now. This is just one location in the United States. Other sites that hold up better to these elements, but that does not excuse our irresponsibility to save these fossils. Are the museums going to take all these fossils? I don't think its possible. Our public deserves to have some of these treasures if they are common enough. With proper collecting on federal lands through permitting for commercial and amateur collectors, all will benefit. Its the proper guidelines that we should be striving for, not blanket exclusion that will show off our overall ignorance. As far as international markets are concerned, do our museums have fossils from abroad? you bet they do. Should foreign museums have the right to have American fossils? Yes, within reason. Just because our economy is not good right now does not mean it will stay that way. Passing bad laws for today could hurt us tomorrow when the economy improves. Another point. Museums benefit from inheriting wonderful collections from the private sector. A lot of the better fossils can and will find its way into the museums.

III 1) A ETHICAL DISPOSITION OF FOSSIL SPECIMENS This word "ethical" is a dangerous word to use in the day where organizations are trying to exclude whole groups from collecting fossils. In the name of what? Ethics? Would a museum that is in grave financial trouble be able to take advantage of tax credits as mentioned in **3) TAX CREDIT IN LIEU OF ABOVE** What about the rancher that cant make ends meet. Can he use a tax credit when he makes no money to credit in the first place? Be very careful in the laws that are passed not to discriminate against the poor. Those who can afford it, can certainly afford to make donations to the institutions of there choice. There are museums and colleges that do not take care of their collections.

III 2) RESPONSIBILITIES OF FOSSIL COLLECTORS ON PRIVATE LANDS This could also fall under III 1). I own land and have a feeling for what can happen to a landowner and his interested visitors weather it be hunting, camping, fossil collecting, ect. I do believe that land owners are constantly dealing with this problem and believe me, the misuse of one makes trouble for all. For fossil collecting, I recommend following the AAPS (American Association for Paleontological Suppliers) guidelines for collecting on private land.

IV 1) B NAS RECOMMENDATIONS FOR MANAGEMENT OF FOSSILS ON PUBLIC LANDS I support the NAS guidelines in general and think the purpose of the guidelines is right on the money. One thing that I would like to see changed is the idea that fossils are a renewable resource. To me, Cambrian fossils or any other fossil from a period of time cannot be regenerated.

IV 1) C SENATE BILL 3107 This is a bad bill. The writers tried to sneak it through and for that reason alone its unacceptable. Consult the commercial/amateur sector on the next bill so we can write a bill that is fair to all interested parties and our children. For this and other reasons, Bill 3107 should be dropped.

I. PUBLIC AWARENESS AND EDUCATION

3) Public Education

According to the opening remarks of S.D. Governor, George S. Mickelson, "This (fossil) issue has generated a great deal more letters than any other issue during my past 6 years in office." This is an indication of the great need there is for better and more widely disseminated information on the treatment and management of fossils. How do we inform the public and shape their attitudes and behavior? -- Ask members of the media, they do it all the time! Cartoons and TV comic "sit coms" have their place, but we need to make sure information given out is accurate. A concept of time span and earth events, recorded in the stratigraphic horizons of geological deposits must be shown in relation to changes in invertebrate animals and plant life, to the advent of fishes, the first vertebrates, through the amphibians, reptiles, mammals, primates, and eventually the Homo sapiens or modern species of man. The proper background is necessary to foster respect for all evidences of life on earth.

How can we conserve fossils and still share the knowledge and excitement of seeing the remains of organisms that lived very successfully for hundreds of millions of years? It is necessary to let people see genuine fossils and become familiar with them. Even in large cities the average school child would be lucky to get a visit to a paleontological museum once during their public school years; with that visit lasting perhaps 2-3 hours at most. Field trips and transportation means are difficult and expensive to arrange for all pupils. I believe most states have at least a token program for sending out sample kits of fossils, etc., to public schools. This type of outreach needs to be greatly expanded, with sequential development for succeeding grade levels, through high school. As difficult as it is to reach all children in or near a large city, it is a formidable task to extend this experience to schools not in or near a large city. There is a very good argument for more museums in smaller town, where at least real fossils and exact replicas may be seen and studied. Television and computer programs, as well as films do help and are used, perhaps to excess. They are good sources for educating pupils and teachers, if they are quality productions and can be worked into the curriculum. Outside speakers may be excellent and yet are very inadequate if you consider the percentage of pupils in the U.S. who actually get to experience a presentation, and sadly, only a handful of adults will ever get to enjoy one.

The public must not be forbidden to seek and touch fossils, except in national parks and monuments, or on private property without permission. They should be encouraged to keep a watchful eye out for them and be able to recognize the difference between potentially significant finds in stratified deposits that could be documented as to location and age, and those random, disarticulated fossils no longer in situ, scattered in gravel deposits or in detrital materials. A well-produced and on-going educational program will be needed to raise public awareness and to foster conservation and the intelligent study of fossils.

These comments are based on my own experience as a professional geologist with the U. S. Bureau of Reclamation for 7 years, and as a middle school science teacher for 20 years, now retired. I have given dozens of presentations to children and adults outside my work schedule. My efforts to educate the public have been greatly enhanced by the availability of rock, mineral and fossil specimens, found by myself or purchased from legitimate commercial paleontologists, professional in every respect. My undergraduate majors in anthropology and geology were from U.C.L.A. and the Univ. of New Mexico, and my MS⁺ was in biology, from South Dakota State University.

Name: Patricia M. Cheeseman

Affiliation: Brookings Area Gem and Min. Soc.

IV. PUBLIC LAND MANAGEMENT

1) Senate Bill # 3107

As president of the Brookings Area Gem and Mineral Society, affiliated with the Midwest Federation of Mineralogical Societies and the American Federation of Mineralogical and Geological Societies, I protest the principles and implications of Senate Bill # 3107, introduced by Senator Max Baucus. It is a threat to all Americans, and may make all fossil collectors subject to search and seizure action by federal agencies. Over-regulation would prove to be costly and inefficient. Tax dollars would be needed to subsidize a select group of paleontologists to perform government contracts for surveying and inventorying the countless square miles of public land for fossils; additional moneys would be needed for enforcement and prosecution of violators as well. The proposed bill 3107 would cause unnecessary loss of citizens' rights of access to public lands. If my child picks up a fossil, both of us may face felony criminal and civil charges. These could result in the loss of my car, and unreasonable penalties of \$10,000. and one year in prison for each fossil-related violation, and as much as \$100,000 for subsequent violations.

Worst of all, S.3107, should it become law, would prevent the early discovery of hundreds of vertebrate and invertebrate fossils which are continually weathering out of sedimentary deposits across the nation. If they are not discovered, documented, and preserved, they will disintegrate and be lost to science forever. Law-abiding amateur and commercial paleontologists would be prevented from helping to save them by complicated permitting protocol. But the unscrupulous and untutored vandals will keep on hunting surreptitiously and scavenging fossils with impunity. As in the case of overly-strict gun control, only the lawful citizens would be controlled -- the outlaws will go underground and become an even greater threat. Bill S.3107 promises incentives and opportunities to amateur and other private paleontologists, but by the letter of the bill these "opportunities" are virtually unattainable.

It would be inappropriate to consider vertebrate paleontology in the same light as archaeology -- which findings are much more rare, and carry concomitant human physiological, social, and religious significance. It is likewise quite inappropriate to consider "amateur and commercial" paleontologists to be necessarily unprofessional. Many of us have advanced degrees even though we may not be presently employed by universities or the federal government. Through our geological societies we perform many valuable volunteer services: educating the public, giving presentations to groups of children and adults as well. We act as guides on field trips, judge 4-H projects, donate trophies and awards, and donate funds for scholarships. And perhaps the most important, we adhere to a strict Code of Ethics. Geological society members have education as a primary interest. We are not vandals and should not be treated as such!

The United States does not need more government or more restrictions. Such regulations would not have the positive results of an effective and on-going public educational program on the significance and preservation of our fossil resources. Bill S.3107 would cause excessive regulations at an exorbitant price, and would be virtually unenforceable. I urge your rejection of the Baucus Bill S.3107.

Name: _____

Minot State University

Affiliation: _____

There are many important points that need to be addressed in any discussion of regulating fossil collecting, not the least of which is the very real difference between abundance and rarity of invertebrate, plant fossils, and vertebrate fossils. My comments concern vertebrate fossils unless otherwise stated.

Scientifically valuable vertebrate fossils, with a few exceptions, are rare, a fact acknowledged by the Committee on Guidelines for Paleontological Collecting of the National Research Council (1987, page 16) which stated "fossils of most terrestrial vertebrates are not common, and generally they have a patchy distribution in stream and river sediments. *Such unusual fossils deserve special recognition by society and the scientific community*" (italics are mine). Vertebrate fossils of limited scientific importance, such as bone fragments and non-diagnostic elements which cannot be assigned to a particular species, should be considered as a separate issue. These fossils often have educational value and, in context, scientific value to indicate the presence or absence of fossil vertebrates.

The view that fossils are a renewable resource is a fallacy. By definition a renewable resource is one which is naturally replenished by processes on the earth's crust. If all fossils were stamped from the same mold like molecules of quartz, this view would have some degree of validity. However, fossils are remnants of prehistoric life, and two facts should always be kept in mind. One is that time is a non-repeatable phenomenon, the other is that all individuals differ from other members of the same species. It is the understanding of these conditions that is the very basis of paleontology. Fossils are perhaps the least renewable resource. No matter how long we wait, no additional dinosaurs will ever be created, and the finite number of specimens which exists today, will only decrease.

Together with the fact that vertebrate fossils are rare, it must also be recognized that the existing population samples of most vertebrate species are very limited. The majority of named species are represented by fragmentary remains, partial skeletons in some cases, partial jaws or only isolated teeth in others. The rare or uniquely preserved specimen offers opportunities for study which may not be duplicated in several generations. The loss of even a single extremely rare specimen can significantly hinder a scientific study. This loss may be due to natural forces, vandalism, or collecting if the specimen is not available for study.

The nature of the debate of Fossils for the Future is the best method to preserve vertebrate fossils for coming generations. How do we best serve the interests of our grandchildren and their grandchildren? Science attempts to hold itself to a rigorous set of standards, to be objective in its views, to be repeatable and testable. The only way in which paleontology can achieve this status is to collect all of the pertinent data; geographic, stratigraphic, taphonomic, and sedimentologic, associated with the fossil specimens, and to preserve the specimens themselves so that other scientists of this and future generations can "repeat the experiment". Research collections thus differ from other collections in their permanence and in the amount of ancillary data that is maintained. For a specimen to be of scientific value, it must have the information of its context. Research paleontology is, by definition, preservation of the resource.

Some collectors use the argument that it is better for someone, anyone, to collect a fossil rather than to allow the specimen to be destroyed by the forces of erosion. If specimens not collected during a particular season were destined to become dust within a very limited span of time, this argument might have some weight. However, fossils have a degree of longevity, some more than others, once they are near the surface and prone to erosion. This lifespan may be measured in a few years in the case of some shells and plant remains. It may be measured in tens of years in the case of fossil bones. This does not mean that a fossil bone does not degrade once exposed, only that it does not lose its scientific value if it is not in pristine condition. Even a fragmentary specimen requiring extensive and laborious reconstruction may have as much scientific value as a more perfectly preserved specimen. However, a vertebrate fossil improperly collected, or collected without attention to the details of geologic context, has forever lost most of its scientific value, regardless of how well preserved it is. The collection of fossils without preservation of the pertinent scientific data is not truly preservation; it is the waste of a non-renewable resource.

The final point I would like to address is that of collecting on public lands. The wise use of our public lands should mean deriving the maximum benefit from the resource for the public. The true value of fossils is in what they tell us about the past, not how much they can be sold for on the open market. The maximum amount of knowledge comes from scientific study, not just immediate, but also that of future generations. Paleontological studies today are based largely on collections that were made

Name: _____

Affiliation: Minot State University

decades ago. It may take years to develop statistically valid populations, followed by additional years for the research itself. In many cases, analysis of existing collections is not being done because too few researchers exist. This does not mean that the collections lose their scientific value; specimens retain their scientific integrity as long as they retain their documentation.

The commercial collection of vertebrate fossils on public lands poses a direct threat to research paleontology. This does not mean that some specimens collected by commercial operations have not led to scientific progress. It does mean that overall, opening public lands to commercial exploitation will result in slower, less comprehensive research as specimens are sold to institutions outside of the United States or into private hands where the material is not available for study. Commercial fossil collecting does serve a valid purpose. But commercial collectors prize the best preserved specimens. By removing these specimens, the scientific value of the remaining sample is degraded. We cannot prevent important specimens from being lost to the forces of nature, but we should not promote the loss of the resource by our land management policies.

The existing prohibition of commercial collecting on federal lands has not eliminated legitimate commercial collecting. Private lands have been and will remain accessible to commercial, amateur and scientific fossil collecting, provided the collector can reach an agreement with the landowner. Commercial collectors have an advantage when dealing with private landowners because they have the option of paying for the privilege. Academic institutions and museums do not have the financial resources to compete in this way. This leaves public lands as the only lands where scientific research can be conducted with the general assurance that the sample will be unbiased from the preferential loss of some types of specimens.

The fruits of research are often slow to develop as the small bits of information are gradually synthesized into a better understanding of earth's history. This becomes part of our education, at all levels, and influences how we view our place in nature. Preserving these public resources for the American people and promoting the maximum use of the material through research and education is the best way to preserve this piece of our heritage.

Name: Peter L. Larson

Affiliation: Black Hills Institute

In a democracy, credibility and accountability are two attributes demanded of a leader. It is only through our leaders, our elected officials, that we can hold the people in government bureaucracy accountable. The government bureaucrats who planned the Northern Plains Governors' Conference, "*Fossils for the Future*", used the Governor's names and office to give the appearance of having elected officials involved in the discussion of public policy.

It seems that the organizers did not desire the Governors' active participation in the conference since most of the Governors were not invited to attend until a few weeks before it was to begin. To hold a Governors' Conference with no Governors in attendance is, at best, misleading and irresponsible. In fact, reporters covering the conference were surprised to discover there were no governors participating.

Governor George S. Mickelson, the host, through the hard work of his chief aid, Frank Brost, was successful in bringing in the nations highest ranking paleontologist, Dr. John Pojeta. Dr. Pojeta spoke about the status of guidelines for paleontological collecting on public lands. Governor Mickelson stated in his opening remarks, "I believe the formation of public policy is best accomplished through complete discussion of all pertinent issues." These comments could have set the tone for a productive two days if the organizers had wanted a balanced conference.

Unfortunately, the organizers had a different agenda. The conference itself was a failure. Over sixty people protested against the inequitable and unbalanced nature of the conference. A free public meeting was held by the protest organizers, to give the public a chance to express their views, without having to pay the \$50 registration fee demanded at the conference. The public meeting drew one hundred and fifty participants - as many people as attended the actual conference. These citizens felt that the public should be involved in an open discussion of the use of public lands.

The last day of the Governors' conference was the only day of the conference set aside for actual discussion. The first day was devoted to registration and the second day was given to speeches. The last day of the conference was cancelled because of the hostage incident.

Contrary to the purported reasons given by the organizers, who hailed the conference as an open public forum, the real purpose of the conference was to write a report supporting S 3107 introduced into the U. S. Senate on 30 July, 1992 by Max Baucus of Montana. Public statements such as, "We need legislation. These (fossils) are in short supply", by Terri Leistman, Archeologist for the Forest Service, and chief organizer of the conference, illustrate the real

purpose behind the conference. Another conferee, Pat Leiggi from the Museum of the Rockies in Bozeman Montana, lauded S-3107 during his speech at the conference (S-3107 was introduced by Senator Max Baucus of Montana after being approached by Leiggi). Richard Stucky, a participant from the Denver Museum of Natural History, said he supports the bill "100%". The presence of Jan Campbell-Miller, from Senator Baucus' staff and author of S 3107, is further evidence that this was the conference's purpose. All the Issue Group Chairpersons at the conference supported S-3107 with rhetorical, one-sided speeches. These people all work for, or represent, tax-supported institutions -- the same people and organizations who would directly benefit from the passage of S-3107.

Simply put, these people did not want a public forum, but a venue for publishing this report to lobby for S-3107. The purpose of this Governor's Conference report is to supplant the well reasoned National Academy of Sciences report entitled, "Paleontological Collecting". Neither the majority of paleontologists nor of the fossil collecting community at large supports S 3107. However, the organizers now hope to salvage the conference by publishing this report. Of course, if publishing a bunch of letters could have accomplished the organizers' mission in the first place, they could have saved the money spent to bring one hundred and three government employees all the way to Rapid City, South Dakota.

The Federal bureaucracy is again using the governors' names and office to give this report credibility. We are depending on you to hold the bureaucracy accountable. This "Alice in Wonderland" report, about a Governors' conference with no Governors, conferring at a conference that never went beyond the looking glass, is incredulous.

This is an important issue to many people in this country. This topic was addressed in depth by the members of the National Academy of Science Committee on Paleontological Collecting. Those members included representatives drawn from the entire paleontological community and the general public. The final recommendations of that committee adopted should be the basis for any further discussion of fossil collecting on public lands.

I. Public Awareness and Education:

The fossil problem was first introduced to the public by a news release (AP Omaha) by Terri Liestman, US Forest Service, Chadron, NE. It made accusations that "fossil thieves" have been digging up and stealing vertebrate fossils from the grasslands and other areas. This was a bad beginning and poor method used to alert the public on matter of fossil resources as it has caused much bitterness and controversy! Not only that, via the media, the commercial dealers have been given a bad name, merely because they find larger specimens than the average museum possesses.

Later we hear that certain UNIVERSITIES do have PERMITS TO DIG FOSSILS IN SOUTH DAKOTA and have been doing so the past couple of years, and that one UNIVERSITY paleontologists and workers collected in 1992 using very modern equipment to slice out the fossils they were collecting! "Fossil thieves" blamed again! If the present "permit system" was adequate, you'd think the government officials would check first with paleontologists and university officials who have been issued these permits to get information as to "when they've collected fossils, what fossils they was taken. and knowledge of the areas where fossils were collected". All of this information compared with areas of excavation found, before issuing articles of "fossil thieves" in all the newspapers in the country.

Public awareness and participation in the knowledge of fossils is needed, as well as non-profit "Save the Fossils" programs for adult and teenage volunteers. Using volunteers would save state money to be used in hiring more staff workers to prepare the fossils instead of storing them in basements and storage areas for dozens of years. It is usually the landowner or the amateur that discover the majority of fossils in the first place, and fossil must be collected as soon as possible after being exposed to the elements or else they start turning back to dust

Conference and meetings held concerning fossil resources should be open to the public to give a greater number of people from organaizations, and landowners a chance to get involved. Meeting/conferences should not be an expense to those who participate and should be held in an auditorium, like the one in the Rushmore Plaza Civic Center. It does not have to turn into a biased affair, closed meetings one day, big banquet/party at night, then finally, one day for open meetings that delegates or persons from their affiliations can attend. Charging a fee to get a printed document such as this and help with auditorium rental is fair, but NOT fifty dollars per person!!. The government employees and other professionals get their expenses reimbursed, the rest of us do not, therefore, there is a lack of fairness.

II. Economic Development, Long-Short Term Opportunities/Marketing

The National Forest and Grasslands, BLM lands are public land set aside for multiple use and the fossil are a national resource. Collecting on public lands should be on controlled basis for all collectors; state paleontologist, commercial and amateur collectors. Once fossil regulations and laws are passed, such as the proposed NAS report, a computerized system could be set up between the Forest Service or BLM; State scientists/paleontologists/museum directors for such a fossil permit system. The special rare specimens to be collected by the state scientists, and the non-rare plentiful specimens they do not wish to collect, or sell; let the commercial dealers and the amateurs get a chance to collect. It is better to have these fossils preserved, placed in someone's show case, be given to schools, or sold to other museums or collectors than just let them deteriorate insitu!

III. Private Landowners Rights:

At the Governor's Conference, the landowner report only spoke negatively concerning the public, stating they tore down fences, trespassed, etc. in areas where they live. We amateurs were not given a chance to speak out. I have been a member of a gem and mineral club and have hunted agates since 1972 and have never heard of such reports in this area. We DO try to get names of landowners and permittees and do ask permission whenever possible in isolated allotments. We DO shut gates, pick up glass, wire and in one instance, we saved the life of a valuable cow, who was stuck in a hole in the wall of a badland butte! We have established good public relations with permittees and district rangers, as we are thankful to have such public lands to use, and like to treat the land as if it were our own.

There is a need for rules established to protect the rights of the landowner, as well as those who collect on private land to prove he had permission to dig/paid money for the fossil, etc.

IV. Public Land Management/Legislation/Regulations

The NAS report on Fossil Collecting was a two year study made by some of the top professionals in the field of fossils, along with other scientists, representatives from the BLM and Forest Service and the commercial collector. It is fair to all concerned. State and government officials should take another look at this report. There are seven paleontologist societies in the US and even the "membership" of the Society of Vertebrate Paleontologist approved every item but one. This issue still can be worked out with government and state officials instead of casting away this costly report.

Special fossil areas in public land could be fenced off for easier monitoring, thus leaving the rest of an allotment open for multiple use, limiting restrictions put on the whole allotment. When certain trails get eroded after years of creek flooding, we feel the Forest Service can use our tax money to spend a day using a bulldozer to open up such trails for the public.

The following comments represent my personal opinions and are not intended to represent the position of the Colorado Department of Transportation or the Colorado governor's office.

PUBLIC LAND MANAGEMENT

Much of the controversy over Senate Bill 3107 has grown out of misrepresentations of its impacts on existing policy regarding fossil collection on Federal lands. S 3107 is less restrictive than the Archaeological Resources Protection Act of 1979 (ARPA) in that it allows amateurs as well as professionals to obtain permits to collect fossils on Federal lands. Amateurs will be allowed to keep fossils collected off Federal lands with the understanding and knowledge that the fossils remain in Federal ownership (i. e., they cannot be collected for resale). There is even a single provision for commercial collecting on Federal lands: collecting under contract to recognized public repositories for deposit in their collections. ARPA makes none of these concessions.

S 3107 pertains only to vertebrate fossils, not invertebrate or plant fossils; the proposed legislation protects only those fossils found on public lands. There is no restriction proposed on hobby collecting of non-vertebrate fossils on public lands. Furthermore, contrary to statements by some commercial collectors, there is little if any sentiment among professional and amateur paleontologists to extend similar protections to vertebrate fossils on private lands.

One of the principal thrusts of S 3107 is that there is a common bond between responsible amateur collectors and the professional community that is not shared with the commercial collecting community, that is, a sincere interest in the scientific value of fossils. A concerted effort was made by the professional community to reach out to the amateur community at this conference (and, to a limited degree, vice versa). Statements that have been made by some in the commercial collecting community to the effect that the current controversy is between the professionals (the so-called elite) on one side and commercial and amateur collectors together on the other side are simply media hype.

Underlying the whole S 3107 controversy, but nearly always unspoken, is a basic split in philosophy regarding "public ownership" of fossils on public lands. Some commercial and amateur fossil collectors take the position that "public ownership" of fossils on Federal lands means that each individual person should be able to take any fossils he wants for his own personal use and/or monetary gain. I believe that most professional vertebrate paleontologists (including myself) and many amateur paleontologists feel that public

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ownership of fossils means that they belong in reputable, non-profit, public museums with staff (paid and volunteer) competent to prepare and preserve the fossils so that they may be seen and studied by interested parties, be they amateur and professional paleontologists interested in detailed scientific study of the specimens or members of the general public trying to gain a broad, general knowledge of the history of life on earth.

PUBLIC AWARENESS AND EDUCATION

Governmental/public museum/private citizen partnership opportunities should be encouraged and funded by grants, private donations, and tax revenues. The lunchtime presentation on the Garden Park fossil area demonstrated how cooperation among Colorado's amateur (Garden Park Paleontological Society) and professional (Denver Museum of Natural History) paleontologists and government (BLM) land managers resulted in protection and recovery of the resource in such a way that it can be used to benefit both science and the public. CDOT looks forward to the initiation of efforts to join with GPPS and DMNH in the future excavation of vandalized dinosaur remains in CDOT ownership near Canon City.

The Colorado Department of Transportation (CDOT) has for several years cooperated with an amateur group, the Friends of Dinosaur Ridge (FDR), to enhance the scientific and educational value of the Alameda Parkway dinosaur trackways and the historic Yale Peabody Museum dinosaur bone quarries at Morrison, Colorado. Both the efforts at Canon City (Garden Park) and those at Morrison have been made possible in large part by amateurs willing and eager to act as (1) scientists and (2) custodians, rather than exploiters, of the resource.

ECONOMIC DEVELOPMENT

I was very impressed by the accomplishments of the Mammoth Site of Hot Springs, South Dakota, Inc. I have advised the Friends of Dinosaur Ridge (and would advise others) that it should examine the Mammoth Site as one possible model for its hoped-for visitors' center at Dinosaur Ridge. I also intend to advise the governor of Colorado that this is the type of paleontological economic enterprise that should be encouraged by the State of Colorado because it protects the integrity of the site and develops its scientific and educational values, while providing an opportunity for scientific study, an educational experience for the general public, and jobs and revenues for the local area.

III PRIVATE LANDOWNER RIGHTS

1) Rights and Responsibilities of Landowners

- A) The landowner also owns the fossils on his land. He is responsible for conserving both. He needs to understand that fossils are a biological record of life on earth, and that the location and manner of their burial and preservation is a geological record of the earth itself. Therein lies the ethical nature of the owner's decision as to how to care for and dispose of his fossils so that no aspect of their value is mitigated.

2) Responsibilities of Fossil Collectors on Private Lands

- A) To have landowner permission
- B) To respect the land; minimize range damage
- C) To be professional in all aspects of collection
- D) To share fossil information with owner
- E) To make the collected fossils readily available to the public for study, and for exhibition if they merit it

3) Voluntary Registry of Fossil Localities

- A) Good idea if the landowner rights are safeguarded

4) Legislative Consideration for Landowner Protection

- A) Landowner's standard fossil collecting permit similar to the federal permit issued to collect on public lands
- B) Establish provision for reimbursement to the landowner for fossils collected on his land if they merit it.

Name: TERRI L. LIESTMAN

Affiliation: ROCKY MOUNTAIN REGION, USDA, FOREST SVC

As the stewards of millions of acres of Forest System lands, the U.S.D.A. Forest Service has identified a need to know more about vertebrate fossils so we can better meet our management responsibilities. In fact, we believe that failure to protect these irreplaceable public treasures could be considered gross irresponsibility as land managers move into an era of increased concern for fossil resources. Further, our imminent concern extends into the next few years, since it is highly likely that laws and regulations pertaining to fossil resources will be written on a national and state level. It is essential that appropriate scientific consideration and local involvement be incorporated into this legislation or it may not effectively address the complexity of managing this very important resource.

Interest in fossils has grown concurrently with the intensive marketing of dinosaurs. This interest has resulted in a substantial increase in fossil collecting by the scientific community, the commercial collector, and the hobbyist. Vertebrate fossils are a finite, irreplaceable resource from which carefully controlled excavation and scientific investigation can reveal important information about long past environmental conditions. Another equally valid consideration, of course, is the importance of fossil resources to local tourism and economic development. Further complicating factors arise since it is illegal to collect most fossil specimens on public lands without a permit, and often there are few boundary designators between public and private holdings. Although many agencies and states are struggling to develop management strategies for this most important resource, administrative coordination and enforcement has been inconsistent and the loss of an irreplaceable public resource continues. Given the range and diversity of issues, the goal of this conference is to establish groundwork for a coordinated regional approach to integrate education, economic development, and protection by considering the public and private interests at the national, state and local level.

Since January of 1991 the Forest Service has been involved with the State of South Dakota in the organization of this Conference because of a deep concern for fossil resources. At that time five major topics were identified as requiring further consideration. They are: Public Awareness and Education, Conservation and Preservation, Economic Development Potential, Private Landowner Rights, and Public Land Management Issues. They remain the major focus of the Rocky Mountain Region's interest in the paleontological resource issue.

The Northern Plains Governors' Conference: Fossils for the Future was not organized to debate who should rightfully possess specific fossil specimens. But the emergence of such newsworthy events points out the need for an open forum which provides articulation and better understanding of this and related issues. The Conference was organized to attempt to clarify issues and raise awareness about fossil management. The goal of the conference organizers was to provide a fair and open public forum where land managers, professionals, commercial interests, and amateur paleontologists could convene for the purpose of exchanging information and identifying issues concerning management, protection, and economic development issues related to vertebrate fossil resources. It was not intended as a conclave where decisions would be made or regulations written. While recognizing that it is unrealistic to attempt to "solve" such difficult problems in the short time we met, it is the hope of the organizers that the discussion initiated in Rapid City will add breadth and depth to our understanding of the many complex issues associated with the preservation of fossils for future generations.

Name: Jane P. Abbott

Affiliation: South Dakota State Archaeological
Research Center

PUBLIC AWARENESS AND EDUCATION
Academic/Amateur

Amateurs have played a role in many different branches of the natural and social sciences, such as astronomy and ornithology, with varying degrees of receptivity from the professional community. For some reason, the field of vertebrate paleontology seems to display the greatest degree of polarization between amateur and professional. Both sides can give many and varied reasons why this has occurred and continues to occur.

As a vertebrate paleontologist working as an archaeologist I have heard double the complaints about amateurs and professionals. I am frankly tired of all the bickering. All of us must realize that these attitudes have not and can not further the science of paleontology. Below is a listing of some of the complaints I have heard from professional and amateur paleontologists and archaeologists (the complaints are often the same). I'm sure all of the complaints have been heard before by many and new ones could be added; it appears we all have some of the same complaints against each other. Many of the complaints may be valid or at least contain a grain of truth, whether we like it or not. The list of complaints illustrates how much distrust there is between the amateur and the professional in the field of paleontology. The accusations are:

Amateurs are "headhunters" and "looters"; people with little regard for the importance of science; people who collect only what appeals to them, what is saleable. Amateurs collect without any attempt to use proper field techniques. If a specimen is destroyed or damaged through improper handling, another can be found or bought. Amateurs willingly destroy information for personal gain. Amateurs do not record any fossil field data, which is not necessary anyway because the specimen will only gather dust on a shelf or be made into bookends or a bolo tie. Specimens collected by amateurs are lost to science or worthless, because you can never trust an amateurs data. Amateurs lack any understanding or even awareness of state and federal fossil protection laws. Amateurs know the law but trespass on private or state and federal land anyway. You cannot trust an amateur.

Vertebrate paleontologists are "haughty" and "condescending"; people who talk down to amateurs if they will talk to them at all. Professionals have row upon row of dusty fossil cases whose specimens never see the light of day, never get displayed. If the scientists do publish they only isolate and confuse amateurs by using dry, boring technical jargon which no one can understand. Vertebrate paleontologists only publish in scientific journals to keep new developments and techniques out of the hands of amateurs. Professionals use state and federal laws to threaten the amateurs personal collection, field areas, and all other aspects of their hobby. Vertebrate paleontologists would use laws to "protect" specimens that will not be collected and will be destroyed by nature. Professionals put money and reputation above the real interests of paleontology. It is the amateur who is the true professional because he is the one truly committed to paleontology. The amateur is a better authority on local localities than the "authority" at the museum.

I could attempt to address some of the above complaints but I will not. Name calling, by either side, cannot help the cause of paleontology but only impedes it. We, as professionals must realize that amateurs are not going to disappear just to make us happy. Nor are we going to be able to use laws to legislate them out of existence; they are here to stay. Grumbling and arguing has not worked, perhaps we should actually try to learn to live with each other and find some common ground. We must learn to see the benefits of cooperation between ourselves and the amateur. Conscientious amateurs can and do contribute a large amount of effort towards collecting, public education, and yes, even scientific knowledge. Amateurs create interest that bring students to the field and visitors to our museums. Amateurs donate collections to institutions. Amateurs make professionals aware of many localities or important specimens that may go unnoticed. We must learn to pay more attention to amateurs and their findings. We must listen to their questions and try to answer and educate. There are many more amateurs out there than trained vertebrate paleontologists. Organized and educated amateurs can find new localities, report abuses, and educate the public. Amateurs can offer an important resource base for paleontologists working in the area. Think what a large group of organized, trained and enthusiastic amateur allies could mean to vertebrate paleontology.

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Affiliation: South Dakota State Archaeological
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Amateurs are going to have to realize that the "good old days" of collecting are over and can not and should not return. In the past collectors found nothing wrong with robbing indian graves and turning the bones into combs and jewelry or dynamiting a competitors fossil collecting locality or taking the last of a species. Today most of us recognize that such behavior is wrong. Collecting without a regard for laws, science, ethics or morality is wrong. If you collect only for financial gain and with no concern for science or future generations then you are nothing but a looter and a headhunter. The true amateur collects for the love of his hobby and for its advancement. The laws are there now and will be enacted in the future because there have been abuses by irresponsible amateur collectors. Amateurs must learn to police their own; those who collect illegally or use improper techniques ruin the reputations of honest, educated amateurs. Amateurs must learn proper collecting techniques and share what they have learned with others.

Let us all share the blame here, get past it, and put our differences aside. Working together we all can further vertebrate paleontology as a science and that is, or should be, the ultimate goal of both of our groups.

Name: BRENT H. BREITHAAPT

Affiliation: ULW GEOLOGICAL MUSEUM

PUBLIC AWARENESS AND EDUCATION

Cooperation between scientists, public land managers, and collectors allows for a better understanding and interpretation of vertebrate fossils. Through interagency partnerships public understanding can be enhanced with public involvement of educational and interpretive activities. A fine example of this kind of partnership (and one that should be emulated) was the excavation and interpretation of an Allosaurus in northern Wyoming in 1991. This project involved scientists, land managers, volunteers, educators, collectors, regional and national media, local museum representatives, and the general public.

ECONOMIC DEVELOPMENT

With the fundamental premise that vertebrate fossils are unique non-renewable scientific resources, the issue of economic development must be consistent with the conservation and preservation of these resources. Although the issues of long- and short-term economic opportunities associated with fossils can be debated, the "responsible use" of these resources must be an overriding concern when discussing a fossil's economic "value." Responsible use means minimizing the informational loss of the resource.

Long-term economic development opportunities of vertebrate fossils are easily consistent with the responsible use of the resource. Development of interpretive paleontological sites can assist scientists and land management officials to inform the general public of the significance of fossils and the valuable information that they provide. Without this knowledge, the true value (not in monetary terms) of the specimen is lost. Interagency cooperation is necessary to responsibly develop the educational aspect of the resource on public lands. An excellent example of this was the 1991 excavation of a virtually complete Allosaurus. The cooperative efforts of a variety of groups provided not only for the efficient collection of the dinosaur and a unique educational opportunity, but was also an economic enhancement for the town of Greybull, Wyoming through tourism.

Probably the greatest controversy these days is the short-term economic potential of vertebrate fossils. Commercial collectors and scientists often have diametrically opposite views regarding the "value" of fossils. Commercial collectors generally see the importance of fossils in terms of their exhibit quality and monetary value. Most scientists look beyond the superficial aesthetics of the material to the valuable scientific information that can be attained from the fossil. Scientists usually do not deal with vertebrate fossils as commodities.

Name: BRENT H. BREITHALPT

Affiliation: UW GEOLOGICAL MUSEUM

Therefore, if vertebrate fossils are to be protected and managed on public lands, long-term economic opportunities emphasizing public education and interpretation are consistent with the minimization of information loss. Short-term commercial opportunities are short-sighted in their view of the value of the resource. Privatization of unique, nonrenewable, scientific resources does not conserve the scientific integrity of the resource in the best interest of the public.

PRIVATE LANDOWNER RIGHTS

Cooperation between scientists and land owners can be accomplished through open communication and education of the needs and concerns of both groups and a willingness to work together to protect the scientific resources located on private land.

PUBLIC LAND MANAGEMENT

Clear, consistent legislation should be in effect to protect vertebrate fossil resources on public lands. Existing regulations are inadequate for the protection of these resources at this time. The amount of discussion that has resulted from the NAS recommendations (at this meeting and others) clearly indicates that more work is needed. Senate Bill 3107 addresses the problems of protection of these resources on public lands and should be supported. Misinformation campaigns regarding this legislation are detrimental to the goal of resource protection. Until honest cooperation and communication is accomplished regarding resource protection of vertebrate fossils, the issues will continue to be polarized. Apparent violations and noncompliance of existing regulations regarding vertebrate fossils on public lands not only indicates that stronger, clearer legislation must be put into effect, but also that that enforcement of these regulations will pose many problems. Public land management agencies should be commended for their energies in the management and protection of these resources.

CONSERVATION AND PRESERVATION

Because vertebrate fossils are unique, nonrenewable, scientific resources, the protection of this material is a critical concern. Fossils are the basis for our understanding of past life and environments, and as such, provide valuable information. The protection of this knowledge is paramount and information loss should be guarded against, taking precedence over short-term or monetary goals. Detailed locality data is critical and should be well documented, as well as the proper collection and curation of the material. Scientists should be involved with the removal of vertebrate fossils from public lands. Once collected, this material should reside in a suitable, responsible paleontological repository.

In regard to proposed legislation to protect publicly owned fossil resources I wish to offer some observations and one caution. First of all, there should be no doubt that vertebrate fossils have scientific and educational value. The science of vertebrate paleontology does not just include digging up fossils, naming them, and putting them on display. That is only a portion of the science. The science also includes analysis of the surrounding rock, census of associated fossils, and comparative study of many similar fossils. The results of such studies give us clues as to what the earth was like in the past. What was the climate like on earth millions of years ago? Were there drastic changes then that may affect us today? What can knowledge of the earth's history tell us about our own future? Vertebrate paleontology addresses these questions. It is the result of this exhaustive research that has lead directly to the "dinosaur revolution" we see in our society today.

The educational value of fossils goes far beyond holding a vertebrate fossil in one's hand and naming it or passing a shoebox of fossils around a classroom or even visiting a museum to view mounted specimens. The result of detailed scientific inquiry has educated us about past climates and ecosystems; results which children are now learning about in their classrooms.

This scientific and educational use of vertebrate fossils stems from the shared research of these fossils. Research is shared through scientific publications and by comparative analysis of specimens. The science of vertebrate paleontology requires access to undisturbed fossil beds, it requires detailed locality information,

Name: Scott E. Foss
Affiliation: University of Minnesota
Paleo-intern: Badlands National Park

exact position and orientation, and a census of associated fossils. Furthermore, scientific research, by definition, requires reproducible results.

Research that is undocumented, or worse incorrectly documented, is lost to science. When the fossils are sold to non-scientific interests, they are also lost to science. Comparative research cannot be conducted and results cannot be verified. Selling fossils does a disservice to science and thus to the education of us all. Furthermore, fossil collecting that is motivated by economic ends has proven to be sloppy. Critical locality and associated information is not collected. Non-desirable specimens are often left behind and are sometimes destroyed to prevent collecting by others.

Fossils on public land belong to the public. Scientific research and the shared education it provides benefits the public greatly. However, fossils on public land are threatened. Hundreds of tons of fossils have been poached from public lands and are openly sold in Europe, Asia, and even in the United States. A valuable scientific resource is being stolen from the people of the United States and sold for personal profit. Public institutions need the ability to protect their resources.

I furthermore wish to caution us from viewing vertebrate fossils strictly as an economic resource. Commercial sales have established monetary value for fossils. Unique non-renewable specimens should not be valued monetarily. Let us view fossils from a scientific and educational perspective and not as an economic resource.

Thomas E. Casey

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September 30, 1992

Mary Peterson
Forest Supervisor
Nebraska National Forest
270 Pine St.
Chadron, NE 69337

Re: Northern Plains Governor's Conference - Fossils For The Future

Dear Ms. Peterson.

Thank you for this opportunity to submit post conference comments regarding "Fossils For The Future."

After reviewing the present law, listening to the comments of the conference participants, and reading Appendix R of the National Research Council's publication, Paleontological Collecting (copyright 1987), it is my conclusion that the paleontology community would greatly benefit from an updated and concise manual on the present state of fossil collection laws.

Moreover, the proposed Vertebrate Paleontological Resources Protection Act or "Baucus Bill" (S. 3107) should have a companion publication that accurately specifies how this bill, if passed by Congress, would impact both current fossil protection law and the science of paleontology. This publication would clarify the misstatements and inaccuracies I read in some of the literature distributed at the Fossils For The Future Conference.

Only after complete and accurate information is available can public policy be accurately debated.

I look forward to hearing your response in this regard.

Very truly yours,



Thomas E. Casey

TEC:rf
cc: file

Name: Glenn C. Crossman

Affiliation: amateur

IV) PUBLIC LAND MANAGEMENT

1) Legislations and Regulations

A) Existing and Proposed

Current regulations are now too restrictive, and the proposed even worse. Public Lands should be public lands--not just for a few vertebrate paleontologists who feel they are God's Chosen Few. If the total 1200 were to collect 365 days per year at 20 acres per day (which wouldn't give very thorough results), it would take over 30 years to cover the areas once, and certainly not leave much time for digging and preparation, not to mention scientific study. In the meantime, untold numbers of valuable specimens would erode and weather away. And this does not include private land, which they also want to control. Even with all the amateurs and commercial collectors (who have made a great many discoveries), these vast areas cannot be properly covered, and a great many of their finds have been turned over voluntarily in the form of localities and specimens.

If it is outlawed to even pick up a piece of fossil, where will the future paleontologists come from? Certainly most dedicated individuals learned their interest by finding a fossil at an early age. I would wager that not too many who have never picked up a fossil would suddenly decide to major in it and make it their life's work.

Under the "no touch" policy, parents wouldn't even be able to allow their children on public lands for fear one might touch a fossil and be arrested. And they call them "Public Lands".

I heard it stated at one of the BIM conferences that vertebrates should not be exported--only casts. If casts are good enough for them, why not for us? Several States also have the policy that "significant fossils" must remain in the State of origin. Should we now have a nation of 50 Independent States, instead of the United States? There should be free trade, not isolationism. Or, should the same apply to zoos, gemstones, etc., etc.

B) NAS Recommendations for Management of Fossils on Public Lands

A scholarly document which should be adopted.

C) Senate Bill 3107

Totally unacceptable in most parts. Fossils are not artifacts.

2) Permitting and Enforcement

B) Closure/Open Areas

Certain prime areas suitable for National Parks/Monuments should be set aside, but only in rare cases. The balance should remain open for public collection.

3) Funding

A through C) Costs

Should remain as is. We certainly don't need more Government Agencies and control, either from a cost standpoint or regulation. Under some of the proposed regulations, costs and time delays would be prohibitive.

Name: Janet L. Whitmore

Affiliation: Museum of Geology, SDSM&T

PUBLIC LAND MANAGEMENT/LEGISLATIONS AND REGULATIONS

Vertebrate fossils are non-renewable resources worthy of protection. Unfortunately, current regulations controlling vertebrate fossils on public lands are not sufficient to guarantee their protection. Looting and destruction of fossil localities continue to occur at alarming rates. This vandalism results in the loss of scientifically valuable specimens and the equally important scientific data related to those specimens.

With few exceptions, it is generally agreed by vertebrate paleontologists that the NAS recommendations outlined in 1987 are not sufficient to protect fossil resources on federal lands. A more inclusive management plan consisting of a formal permitting system is needed. The enactment of governmental legislation, like the Vertebrate Paleontological Resources Protection Act introduced by Senator Max Baucus of Montana, would begin the process of ensuring the protection of these resources.

The passage of such legislation alone would be the first step in protection. Although the Archaeological Resources Protection Act was passed in 1979, archaeological sites continue to be vandalized. Like those initiated in the field of archaeology, paleontologists must promote educational programs to inform the public of the significance of our nation's fossils and their role as elements of our country's heritage. To accomplish this goal we must address public attitudes toward protecting fossil vertebrate resources for use in education and research.

Vertebrate fossils deserve protection at a level currently unavailable under law. Bill 3107 introduced by the Senator from Montana would provide that level of protection. We as a nation are losing our national treasures; this situation must not be allowed to go unchecked. We must safeguard our fossil resources for the children of the future. Fossils collected on public lands must remain the property of the public and be preserved in public institutions in perpetuity.

ATHN: "Fossils For the Future"

Name: David A. Burnham

Affiliation: Black Hills Institute of
Geological Research, Inc.

The National Academy of Sciences (NAS) Report on Paleontological Collecting (1987) has adequately covered all of my concerns. I feel the report should not be abandoned nor supplanted by the grossly inferior "Fossils for the Future" fiasco sponsored at the conference. The NAS report has been acceptable to almost all the Federal agencies involved, unfortunately, the Forest Service is not following the NAS guidelines. The NAS report has gone through a lengthy process and is still acceptable to the ~~majority~~ majority of vertebrate paleontologists. Nothing more needs to be done to protect fossils.

Name: Dr. James I. Kirkland

Affiliation: DINAMATION INTERNATIONAL SOC.

The fossil resources of the United States are important sources of information for research and education about the history of life in North America. Because of their relative scarcity, vertebrate fossils in particular can not be considered renewable resources which are continually being replaced by erosion of the host rock. In the area of the eastern Colorado Plateau, large quantities (tons) of dinosaur bone are collected yearly for making jewelry. Areas that had once been covered by bone during the uranium boom days of the fifties are now nearly devoid of any visible fossils. These have not been replaced by newly exposed fossils due to the slow weathering process. As vertebrate fossil sites can only be recognized by exposed bone, many areas are no longer recognizable as such. This is further complicated by collectors burying sites for later collecting. Others sites have been known to have been dynamited to obtain material to be sold by the pound. Even commercial collecting for specimens is preferred to this.

However, the motivation of collecting for the fossil object rather than for the information pertaining to the object results in a serious disparity in the data gathered on these non-renewable antiquities. Often there is more information preserved in the broken scraps of fossils and the surrounding sediment than in the fossil itself. This valuable information is generally discarded into the spoils pile. Without accurate stratigraphic and geographic information the scientific value of the specimen is greatly diminished. Inaccurate or false information is even worse when it is published as fact. It can greatly influence ecologic and evolutionary interpretations for decades.

The professional paleontologic researcher is severely handicapped in comparison to the commercial collector in a number of ways. The professional is employed primarily by major museums and universities, which are generally far removed from the fossil resources, unlike most commercial fossil-hunters who live in the heart of fossil-bearing country. The professional paleontologist operating under federal and state permits is required to submit detailed reports and reclaim disturbed areas. Commercial collectors generally avoid such requirements by collecting on private land or in some cases illegally on public lands. Additionally, considerable time is spent securing funding to support field crews and students (more difficult with each passing year), as well as the regular duties of teaching and developing exhibits. The commercial fossil-hunter needs only to sell the bones to sustain a living. Finally, progress and advancement for the professional paleontologist is measured in published works and students graduated (a long and complex set of processes undertaken over several years). The commercial fossil-hunter progresses as fossils are collected, prepared, and then sold. Thus, the per-person production of prepared fossil material is much higher for the commercial fossil hunter than it is for the professional paleontologist.

The popular vertebrate fossil exhibits at most national and regional museums are important tools in attracting people to the museum, many for the very first time. These museums bring in people to their respective communities, but with decreasing funding levels

Name: Dr. James I. Kirkland

Affiliation: DINAMATION INTERNATIONAL SOC.

do not have sufficient resources to purchase fossils for their own exhibits. Most museums have strict policies against buying antiquities of any kind. It is vital to preserve regions where public museums and universities can conduct paleontologic expeditions and the kind of research that generates exhibits as a by product. In areas, where fossil "trophy" hunting occurs it is nearly impossible to conduct research that will generate unbiased research results. For this reason many larger research institutions conduct their major research outside the United States. In nearly every country but the United States vertebrate paleontology trophy hunting is illegal. Given the fact that there are no restrictions for exporting fossils, commercial collecting is rising rapidly in the United States.

In addition to the obvious scientific and educational benefits, there are potential long term economic benefits to protecting our fossil resources on public lands. Many of the very significant vertebrate fossil localities could be developed into interpretive centers for public education and continued research. This has been successfully done with many great archaeologic sites in the southwest. These interpretive centers would be magnets for tourists, students, and researchers in regions that are often financially depressed. Examples of such interpretive centers are Dinosaur National Monument, Fossil Butte National Monument Florissant Fossil Beds National Monument, Cleveland-Lloyd Dinosaur Quarry, the Ash Fall Quarry, and the Hot Springs Mammoth Site. The development of such important sites can provide a structured educational opportunity that would surpass any similar museum experience. Furthermore the development of such interpretive centers can be done in such a way as to preserve sites as natural research laboratories for generations to come.

The protection of our national vertebrate fossil resources is difficult at best. There is a need to first formalize the laws protecting these resources with the PALEONTOLOGICAL RESOURCES PROTECTION ACT and harsh penalties incurred for those who violate them. It is important that the regulations pertaining to this law not be an unwarranted burden on the research community and be applied consistently throughout the public lands. A strong commitment at the federal level is crucial to the funding of additional law enforcement personnel to administer the law. This is relatively easy with the research community which supports and will follow the regulations. Unless people are caught in the act however, there is little that can be done to enforce any regulations controlling the collection of vertebrate fossils on public lands. It is difficult to see a huge increase in the budget for patrolling the millions of acres of public land and without increased monitoring there is little chance of catching someone in the act.

Another strategy would be to control the sale and export of fossils, much as is done with endangered species. These steps in the exploitation of our vertebrate fossil resources occur at much more fixed sites, which could be monitored more cost effectively. This would insure that these resources will be protected for the benefit of all Americans for untold generations to come.

FOSSILS FOR THE FUTURE

Comments to Discussion Group (never held)

by Steve Robison, USDA Forest Service

Although the work group discussions were not able to be held, I do have some concerns about the topic. By training I am a professional vertebrate paleontologist, and because I work for the Forest Service, I would have been involved in the Public Land Management group. However, I do have some concerns for the conservation and preservation and economic development areas also. These will be discussed individually (as much as possible).

ECONOMIC DEVELOPMENT

There is certainly a place in this world of ours for the commercialization of fossils, but that place may be very restricted. In general, fossils on the public lands belong to the American public, not to the individual who "finds" it. If we say it belongs to the individual, then we are opening up the land to something akin to the 1872 mining laws. This promotes a multitude of potential problems, most of which will be discussed in the Public Land Management section. This allows someone to get economic benefits at the expense of the general public. Unless this is controlled somehow (as with the mineral leasing situation, or public grazing - even though it may be a rip-off) there could be some real problems. From a scientific standpoint, if there is uncontrolled economic development, much, if not most, of the significant information associated with fossil finds would be lost. High grading would probably become a standard practice because skulls and some other elements are going to bring a much higher price on the market. If economic return is the only concern, only the best material would be removed, at the expense of most of the scientific information and possibly the rest of fossil material present. Because of the scarcity of much of the vertebrate material, prices could generate considerable interest, considerable prospecting, and considerable problems.

Some types of fossils could certainly be developed economically, such as Green River fish, most invertebrates, and many of the plants. Generally, however, fossil vertebrates should not be sold commercially. This creates problems with private land rights; generally the fossils are considered to be the land owners property. That opens a whole discussion of private rights, that I will not get into here. If, under the direction and "permit" of a non-profit institution, the institution (museum etc.) could "contract" with a commercial outfit for the excavation and maybe even the preparation of paleontological specimens. This type of commercialism is totally legitimate (provided the contractor can do the excavation in a professional manner) in my mind and should be allowed. This could also involve the use of a contractor to survey or prospect for fossils. This type of activity does not lead to or promote a "black market" for fossils, yet still allows the commercial collector a chance to operate. Again, the contractor must be honest and reputable, or they will prospect for their own benefit and later or up front take the best material for themselves. I do not see anything wrong with allowing a commercial operator to prospect an area, and when something is found to try to find an institution to contract with them for the removal of the specimen; removal could not occur until a legitimate institution contracted for its removal.

Commercial enterprise could also be contracted for such things as molding and casting and mounting of specimens, and developing displays. Again, with the molding and casting, the contractor must be able to do the job without unnecessary damage to the original fossils.

I could go on and on, but time will not allow at this point. I would be glad to discuss it with you.

PUBLIC LAND MANAGEMENT

This is the area that I am most concerned about. If not careful we could create a nightmare (it already exists in some places) and suffer real resource damage if it is not done correctly. I certainly do not have all of the answers. I think that the reason for the split opinion of SVP and others is that they (collectors) all want to be able to collect without constraint or responsibility. I would like to be able to go unimpeded into my favorite spots and to whatever I want, but there needs to be some accountability and control. Part of the control is to protect the collector. An example, Brigham Young Univ. recently did some excavation on some Morrison dinosaur bones (under permit with the BLM). Because of the nature of the excavation and time constraints, the quarry had to be temporarily closed because of a threatened species concern (as stipulated in their permit). When they were allowed to return to the quarry, it had been severely damaged, many of the better specimens removed, and much of their work plundered by others. Even though this was under a permit, there was still a problem. If there are no regulations, there would be no protection of one institution's work from another party. Working under a permit system, tightly controlled, should help preserve the "rights" of all these concerned - the institution, museum, commercial collector, general public, and land manager.

Legislation is definitely needed that may be akin to ARPA (similar to or even the Baucus Bill). Without legislation the land manager is very limited to what can be done to protect the resource and legitimate users. This would also require the congress to allocate funds for the management of fossil resources and allow the Federal agencies to employ qualified paleontologists. This would also require the development of regulations, policy, etc. Much needs to be done here, and much of it cannot be done without enabling legislation.

If the paleontological resource is to be protected for the use and benefit of all, it must be managed, at least on Federal lands. The protection of other surface resources, as mandated by law, must be taken into account when administering the paleo program. If there is no paleo program or control of those doing paleo work, whether hobby, commercial, institutionally, or whatever, the Federal land manager cannot fill the land and resource stewardship that they have.

I am out of time to go further into this now. I would be happy to talk to someone about it, and feel that much more discussion is still needed. The first thing that needs to be done (one of the first things) is getting usable legislation in place. I hope that we can all work together for the benefit of all concerned. It is needed.

V. CONSERVATION AND PRESERVATION

Paleontologists are keenly aware that their attempts to understand events in the history of life are limited by an incomplete fossil record. There is an extremely low probability that the remains of an ancient organism will survive to fall beneath the scientist's microscopic eyes. Predation, decomposition, burial, compaction, mineralization, diagenesis, exposure, discovery, and collection are just a few of the stages in the journey of a fossil. Each of these hurdles diminishes the chances that any particular fossil may be incorporated in the paleontological database.

Most of what is to be learned about the history of life still lies buried within the earth. Well over 100 years of field collecting has rewarded us with museums of fossil specimens. However, all known described specimens from the past 3.5 billion years are a minute fraction of all the described living forms on the earth today. Paleontologists often need to travel from museum to museum during their research to look at the handful of specimens available for a particular taxon. Many fossil species are known from a single specimen.

The paleontologist is trained in both biology and geology. Fossils contain both biological and geological information. The collection of fossils is more than walking a ridge and picking up specimens. Valuable stratigraphic information needs to be recorded accompanying any field collection. At time the importance of recording detailed sedimentological, stratigraphic and geographic data may not be recognized. Nevertheless, as new methodologies and technologies evolve, we will realize how critical it is to obtain all information available at the time of collection. Attempts to reconstruct information at a later date incorporates practices less than scientific.

Many in the scientific community are becoming alarmed with the growing commercial market for fossils. The widespread collection of fossils for sale as art objects, curios or personal possessions place another hurdle in the journey of a fossil and removes it from science. This dilution of a limited and non-renewable resource does not bring us any closer to understanding the record of past life.

A vocal group argues in support of opening of our federal lands to unregulated collection of paleontological resources. This non-conservation minded view is short sighted and often fueled by greed. The exploitation of our fossil resources to be sold as art is analogous to the slaughter of birds last century to obtain feathers for the hat making industry. The economic gain in support of social fads and trends is often at the expense of the natural world.

Some commercial collectors are cognizant of the necessity for detailed documentation and have proven helpful to science. However, this practice is the exception and not the rule. Many rock shops feature misidentified fossils and typically have scanty or no locality data. The opening of federal lands to unregulated fossil collection provides no guarantees that detailed information will be obtained or that rare specimens will be directed to benefit science.

In our attempts to find those few needles in the haystack, paleontologists need more specific regulations in order to ensure that more fossil material will be appropriately directed when discovered.

IV. PUBLIC LAND MANAGEMENT

An ever expanding commercial market for fossils places increased pressure on federal and state land managers to adequately protect paleontological resources. Theft of fossils has been reported from lands administered by U.S. Forest Service, Bureau of Land Management and even the National Park Service. It has become readily apparent that there is a void in the current law and a need for greater protective legislation to deter the illegal collecting of fossils on federal land.

The 1987 National Academy of Science Recommendations for Paleontological Collecting on Federal Lands has proven unacceptable by many vertebrate paleontologists and federal land managers. The document compromises preservational and scientific ethics (and common sense) to support unregulated and commercial collection of fossils.

Fossils are unquestionably non-renewable resources. They represent, in most cases, the physical remains of extinct organisms from past geologic periods. That means that there are a finite number of specimens preserved and that "we are not making any more folks"! Perhaps a business-minded person may view some types of very abundant fossils as renewable (as they appear inexhaustible), however, they are non-renewable in a scientific and resource management perspective.

It is extremely irresponsible of the NAS Committee to advocate a relaxed regulatory authority for fossil collecting on federal lands. Apparently the committee missed the point or do not understand the permitting process. A permit is not merely a tool to control the collection of specimens in the field, it serves as an important educational tool. The individual who desires to collect fossils must be made aware that the fossils may occur in areas where other sensitive resources may be present. The fossils may be adjacent to a breeding habitat for an endangered species or overlap a significant archeological site. Further, the permit should be designed to inform the permittee of other regulations and laws that need to be complied with during any field work (i.e., no vehicles in wilderness areas; do not use explosives in public campgrounds; etc.).

Senate Bill 3107, introduced on July 30, 1992, by Senator Max Baucus of Montana is a very thoughtful document. The salient aspects of this legislation include: recognition that the current legislation is inadequate; recognition that fossils are non-renewable resources that have scientific and educational value and are threatened; clearly states that commercial collecting on federal land is prohibited; provides authority for vertebrate fossil permitting; recommends that federal agencies recognize paleontological resources separately from cultural resources; recommends the confidentiality of paleontological site data; recommends the development of educational programs for the benefit of the public; establishes a mechanism for investigation and prosecution of illegal paleontological collecting on federal lands; and, increases the penalties and fines for illegal collecting which will provide a greater deterrent given the escalating commercial fossil market.

Name: Keith Ferrell

Affiliation: Editor, OMNI Magazine

I 2) The number of partnership opportunities available in the field of fossil collecting - professional, commercial, amateur - needs further exploration. Particularly insofar as clarifying/enhancing the posture of commercial collectors. Perhaps a means could be arrived at whereby commercial collectors ally themselves with particular institutions and provide those institutions with a certain percentage donation/contribution of fossil finds in "the public interest." An approach such as this - already in practice on an informal basis by many commercial collectors - would have the benefit of opening more rigorous channels of communication among groups whom, as we saw at the conference, are barely talking today - or are talking only at the tops of their voices.

A partnership approach could also extend to public education, with qualified commercial collectors perhaps joining with local institutions and schools. This might, indeed, offer another opportunity for revenue, on the part of both the commercial and institutional collectors.

My point is, simply, that in every aspect of this issue, there are opportunities for cooperation/collaboration among parties currently at odds with each other.

Appendix A

NORTHERN PLAINS GOVERNOR'S CONFERENCE

August 24-26, 1992

() denotes page number of participant's comments

Participant Names:

Greg Liggett (109)
Fort Hays State University

Eric Fritzsche
South Dakota School of Mines

Randy Elder
South Dakota School of Mines

Jim Sheldon
USDA, Forest Service

Missy Mathis
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Liz Ohlrogge
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Allen Kihm (161)
Minot State University

John Hoganson (99)
North Dakota Geological Survey

William Scheele
Northwest Museum National Hist.

Bob Drew
MCS Group

Pat Evans
MCS Group

Michael Sirbala
MCS Group

Louis Jacobs
Geological Sciences, SMU

Jim Madsen (95)

Curt Johnson
State of South Dakota

Rusty Dersch
USDA, Forest Service

Jim Martin
South Dakota School of Mines

Dr. Mike Nelson (131)
Northeast Missouri State Univ.

Ozzie Tollefson

Scott Foss (175)
University of Minnesota

Dan Grenard (103)
BLM

Jennings Floden (139)
Private Landowner

Shirley Floden (145)
Private Landowner

Dr. Greg McDonald
Cincinnati Museum of Natl. History

Paul Wegleitner
South Dakota School of Mines

Donna Engard (149)
Garden Park Paleon. Society

Patricia Monaco (149)
Garden Park Paleon. Society

Carl Barna
BLM

John Pojeta (137)
Department of Interior

Patricia Cheeseman (159)
Brookings Area Gem & Min Soc.

Tom King
USDA, Forest Service

Norman Smyers (119)
USDA, Forest Service

Charles Clay
Mammoth Site of Hot Springs

JoAnn Kyral
National Park Service

David Gillette
State of Utah

Deb Dandridge
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Wade Winters
Urbandale High School

Stephanie Bowman
Pioneer Trails Museum

Merle Clark
Pioneer Trails Museum

W.N. Denmsion
South Dakota School of Mines

Allen Schroeder
W.H. Over State Museum

David Phelps (125)
WDG & MS

Will Hubbell
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Nedra Richardson
Utah Federation of Dino Lab

John Alf (127)
Rocky Mt. Fed. of Min. Societies

David Anderson (147)
Dakota Fossils

Jason Lillegraven
University of Wyoming

Jan Campbell-Miller
Rep. - Senator Max Baucus

Mollie Miller
SVP, N M Museum of Natl. History

Marian Galusha
AMNH Retired

Doug Nelson (115)
Western Interior Paleo Soc.

Richard Stucky
Denver Museum

Wade Miller (123)
Brigham Young University

Dave Pieper
USDA, Forest Service

Dean Pearson (101)
Pioneer Trails Museum

Terry Schaefer (97)
Pioneer Trails Museum

Marshall Lambert (169)
Carter County Museum

Gary Johnson
University of South Dakota

June Zeitner (91)
SD Paleo Task Force

Alvin Albrecht (148)
W D Gem & Min

Dean Richardson
Utah Federation of Dino Lab

Dixie Alf (127)
Rocky Mt. Fed. of Min. Societies

Mike Voorhies
Univ. NE State Museum

Jon Kramer (140)
Potomac Museum Group

Jennifer Wicklund (121)
Potomac Museum Group

Kathleen Heaney (141)
Potomac Museum Group

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Private Landowner

Bonnie Plooster (155)
Commercial Collector

Helen Ross (111)
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USDA, Forest Service

Greg Garon

Steve Robison (183)
USDA, Forest Service

Robert Emry (113)
Smithsonian Institution

Tom Kilian (94)
SD State Historical Society

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AAPS

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Univ. of NE State Museum

Jane Abbott (171)
SDSMT/SARC

Clayton Black (143)
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BIOPSI

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BIOPSI

Glenn Crossman (178)

Robert Farrar (135)
B H Inst. of Geol Res

Bill McClellan
ND Geological Survey

Brent Breithaupt (173)
WY Governor's Office

James Kirkland (181)
Dinamation Intl. Soc.

Laurie Bryant
BLM

Hugh Genoways
Univ. of NE State Museum

Gael Summer Hebdon
Warfield Fossil Quarries

Mike Triebold (89)
Triebold Paleontology

Jennifer Reynolds (93)
SB Co Museum

Patrick Leiggi
SVP

Mary Peterson
USDA, Forest Service

David Sims
RMFMS

Ray & Dorothy Boyce (105)
AAPS

John Foster

Mark Fahrenbach
SDSM&T, Museum of Geology

Anne Davis
Royal Ontario Museum

Stan Robins
Badlands National Park

Beth Griggs

D.L. Ellis
USDA, Forest Service

Terri Liestman (170)
USDA Forest Service

Sally Shelton (107)
University of Texas

Lance Tait
Univ. of CO at Denver

Virginia Euridge
USDA, Forest Service

Lora O'Rourke
USDA, Forest Service

Jerry Schumacher
USDA, Forest Service

John Donaldson
Badlands National Park

Barb Beasley
USDA, Forest Service

Karl Osvald
Tate Museum & Soc. of VP

Lance Rom
USDA, Forest Service

Frank Brost
SD Governor's Office

Wilda Adams

Phil James
USDA, Forest Service

Mark Gabel
Black Hills State Univ.

Pete Larson (163)
Black Hills Inst. of Geol. Research

Rachel Benton
Fossil Butte NM

David McGinnis
National Park Service

Mitchell Mahoney
USDA, Forest Service

Jeff Parker

George Engelmann
Dept. of Geography & Geology

Susan Edwards
SD Dept, of Tourism

Tom Casey (177)

Jim Nelson (129)
Timber Lake & Area Hist.Soc.

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NE Governor's Office

Darrell Sawyer
Sen. Pressler's Office

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OST Parks & Rec.

Charlotte Black Elk
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WIPS

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SDSM, Museum of Geology

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Cheyenne River Sioux Tribe

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OMNI Magazine

Greg Garon
Timber Lake Area Museum

William Akersten
Idaho Museum of Natural History

Leon Theisen
Custom Paleo

Cindy Hornbeck
OST - GFW

Marilyn Dahm (112)

Jan Baumeister (165)
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OST Parks & Rec.

Russell Fast Wolf
OST Parks & Rec.

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USDA, Forest Service

Janet Whitmore (179)
Museum of Geology, SDSM

Don Higgins

Dr. Gordon Hubbell
Jaws International

Marvin Liewer
USDA, Forest Service

Steve Wallace (167)
Colorado Department of Transportation

Irv Mortenson
National Park Service

Appendix B

BUDGET FOR THE NORTHERN PLAINS GOVERNORS' CONFERENCE

INCOME

Fees	\$ 8,135.00	
U.S.D.A. Allotment	\$ 14,209.86	
Cosponsors	\$ 1,250.00	
TOTAL INCOME		\$ 23,594.86

MARKETING

Brochure Printing, and Postage	
TOTAL MARKETING	\$ 754.79

STAFF

Salaries and Expenses	
TOTAL STAFF EXPENSES	\$ 5,091.77

EQUIPMENT EXPENSES

Logo, Registration Books, Signs	
Banners, Est. Proceedings,	
Film, <i>Allosaur</i> , etc.	
TOTAL EQUIPMENT EXPENSES	\$ 6,491.62

PRESENTERS

Travel and Educational	
Program	
TOTAL PRESENTERS EXPENSE	\$ 7,436.07

SITE

Reception, Meeting Rooms,	
and Luncheons	
TOTAL SITE EXPENSES	\$ 3,222.61

REFUNDS

Luncheon Refund and Registration	
Refund for Two Speakers	
TOTAL REFUNDS	\$ 598.00

TOTAL EXPENSES \$ 23,594.86

INCOME AFTER EXPENSES \$ 0.00



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